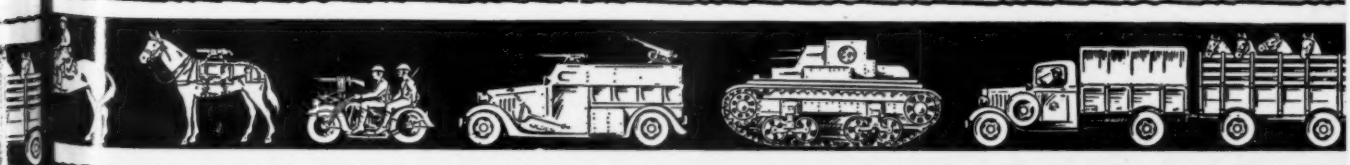
THE CAVALRY JOURNAL



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Published Bi-monthly by The United States Cavalry Association

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Volume LI MAY-JUNE, 1942 Number 3

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Publication date: June 1, 1942. Deadline date, next issue: July 5, 1942.

The United States Cavalry Association

Organized November 9, 1885

The aim and purpose of the Association shall be to disseminate knowledge of the military art and science, to promote the professional improvement of its members, and to preserve and foster the spirit, the traditions, and the solidarity of the Cavalry of the Army of the United States.—Article III, Constitution.

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Editorial offices: 1719 K Street, Northwest, Washington, D. C.

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Publication offices: 1406 East Franklin Street, Richmond, Virginia. Entered as second class matter at Richmond, Virginia, under the act of March 3, 1879, for mailing at special rate of postage provided in Section 412, Act of October 3, 1917. Terms: Domestic subscriptions, individual and organization, $3.00 per year. Foreign, $3.50 per year. Canada: including War Exchange Tax, $3.50. All subscriptions payable in advance. Single copies, 75c. Extra copies to subscribers, 50c. THE CAVALRY JOURNAL *does not* carry paid advertisements.

FACING REALITIES

★ ★ ★ ★

The Cavalry Journal consistently has endeavored to impress upon *everyone* the urgent necessity of utilizing horses in war—commercially and militarily.

The United States has the greatest horse and mule reserve in the world!

It seems utterly incredible that the general public, in particular, seemingly nourishes an antipathy for the horse, possibly because of the general impression that the "horse and buggy days" smack of obsolescence in our now over-motorized age. Where is our true sense of values? The automobile has been publicized and propagandized in the civilian mind to such an extent that the use of the horse in any manner now seems completely beyond the mental range of the public at large.

Like it or not, the present transportation problem in the United States is critically acute and is becoming more so, daily. The rubber-gas crisis already has arrived and found commercial motor transportation facilities totally unprepared for the emergency, although horse and mule power obviously is the solution to the short-range transportation problems. Related concerns,

therefore, such as vehicle, harness, shoeing shops, livery stables, etc., must *set the stage* now for the full commercial use of animals.

As to the military use of animals, the contemporary "victorious" armies of Germany, Russia and Japan have used animal transportation wherever and whenever possible to conserve gasoline and rubber. This is just plain common sense; it permits a more balanced use of resources. Horses are employed in combat because *only* horsemen can quickly and thoroughly search out all manner of terrain especially under adverse weather conditions. In combat *nothing* can replace the horse for the purpose for which his use is intended!

The *Jeep* is our most valuable motor vehicle *for reconnaissance,* but as a transport vehicle it unquestionably is the most extravagant of all motor trucks in proportion to the gas and rubber expended.

It is a proven fact that the commander who possesses good cavalry divisions has a distinct advantage over one who has none. Witness, Russian cavalry at Rostov—the first major German retreat along the Russo-German Front—November 28, 1941!

Let us face realities! It should never be charged that for lack of foresight *we* might have *too little* Horse Cavalry maintained at peak efficiency—and have it arrive *too late*—should the Axis strike south of our southern frontier in conjunction with a thrust to our north!

The UNHOLY

"THERE MUST BE SOME EXPLANATION!"

"WAR OF NERFS! JAWOHL!
–BUT AMERICANS *HAF* NO NERFS!"

ALLIANCE 卐 卐 卐 卐

AXIS ARYAN ALLY.

EDITOR'S NOTE: *These cartoons, from his book "The New Order," are reproduced by courtesy of the internationally famous Polish artist, Mr. Arthur Szyk.*

Japanese Grand Strategy

IN 1909, Homer Lea, the frail American hunchback who became a Lieutenant General in the Chinese Republican Army, startled the military world with his amazing book, *The Valor of Ignorance*,[1] proclaiming Japan's war-like intentions toward the United States. In extraordinary clarity, by word and map, he outlined the inevitable conflict and the course that Japanese aggression would take. By some, he was acclaimed as the greatest military mind of the century; but by the majority he was declared a visionary, denounced as a warmonger—just another crack-pot! In Japan, however, his book was *required reading* by officers in all the services.

Today, military prognosticators are uncomfortably aware of the fact that Lea's *Estimate of the Situation* was sound, as evidenced by Japan's close adherence to his prophecy.

* * *

Japan's military and naval strategy since December 7, 1941, in general, has been well pictured by the press, but the questions that are asked most often are: "What *lies behind* Japan's strategy?" "Why are Japan and Germany allies?" "Where does Russia fit into the present picture?" To reach the root of such considerations one must turn back to the late 1920's and early 1930's when Japan's policies affecting the present situation became definitely crystallized.

In perusing the vast quantity of data on this subject we found a book in the Army War College Library which probably is the most revealing and enlightening volume available, i.e., *When Japan Goes to War*, by O. Tanin and E. Yohan (co-authors also of *Militarism and Fascism in Japan*). Unfortunately, this book, published in 1936, is now out of print, but *International Publishers*, New York, in fine coöperation, authorized us to present a condensation, mainly by means of excerpts, of the "meaty," 55-page introduction, which throws considerable light on the strategic events leading up to the present conflict—as follows:

Background

The program of Japanese aggression—i.e., the establishment of the undivided rule of Japan throughout colonial Asia, usually expressed in the terms "Asia for the Asiatics," "Pan-Asia," or "The sacred mission of Japan to preserve peace in Asia"—was frankly enunciated in the late 1920's and early 1930's, not only in numerous articles by Japanese journalists but in a series of state documents.[2]

A study of the history of Japanese aggression from the time of the Sino-Japanese war of 1894-95, and an analysis of the last period of that history, 1931-34, reveal that the continental and maritime trends of Japanese aggression were so closely interwoven, that they could not be regarded in isolation from each other, and that every success achieved by the one trend inevitably necessitated further steps by the other.

Japanese plans, however, were not confined to China. The time had not yet arrived for armed force, but the prerequisites for the further struggle for the extension of Japanese positions were already being created.

While the tentacles of Japanese imperialism stretched towards the Soviet Far East, to the Mongolian People's Republic, to the Soviet Republics of Central Asia and to Baku, to the Panama Canal, Hawaii, Singapore and Suez, intense war preparations were made in Japan, in Manchuria and in the mandatory islands. The Japanese stopped at nothing in ruthlessly pushing their program. With bomb and revolver the militarist removed from his path not only former Chinese allies (Chang Hsueh-liang and Wu Ching-cheng but even representatives of the Japanese bourgeoisie suspected of lacking patriotism (Hara, Hamaguchi, Inukai, Dan, Inouye, Muto and others).

Everyone remembers that the success of Japanese shipping and Japanese foreign trade throughout the Pacific during the World War stimulated Japanese imperialism to attempt to seize the wealth of mining and raw materials in Shantung. The policy of the "Twenty-one demands" and the Nishihara loans in China developed simultaneously with the preparation, and later the enforcement, of intervention in Siberia.

In the beginning, the occupation of Manchuria in 1931 was followed by the advance of Japanese troops in Chingchow, the attempt to seize Shanghai, the increase of Japanese activity in North China, and the increased pressure upon the Nanking government. To the extent that Japanese imperialism consolidated its positions in Manchuria; its propagandists talked more and more about the further plans of Japanese aggression. In 1932 the *Japan Times*, semi-official organ of the Japanese Ministry of Foreign Affairs, wrote:

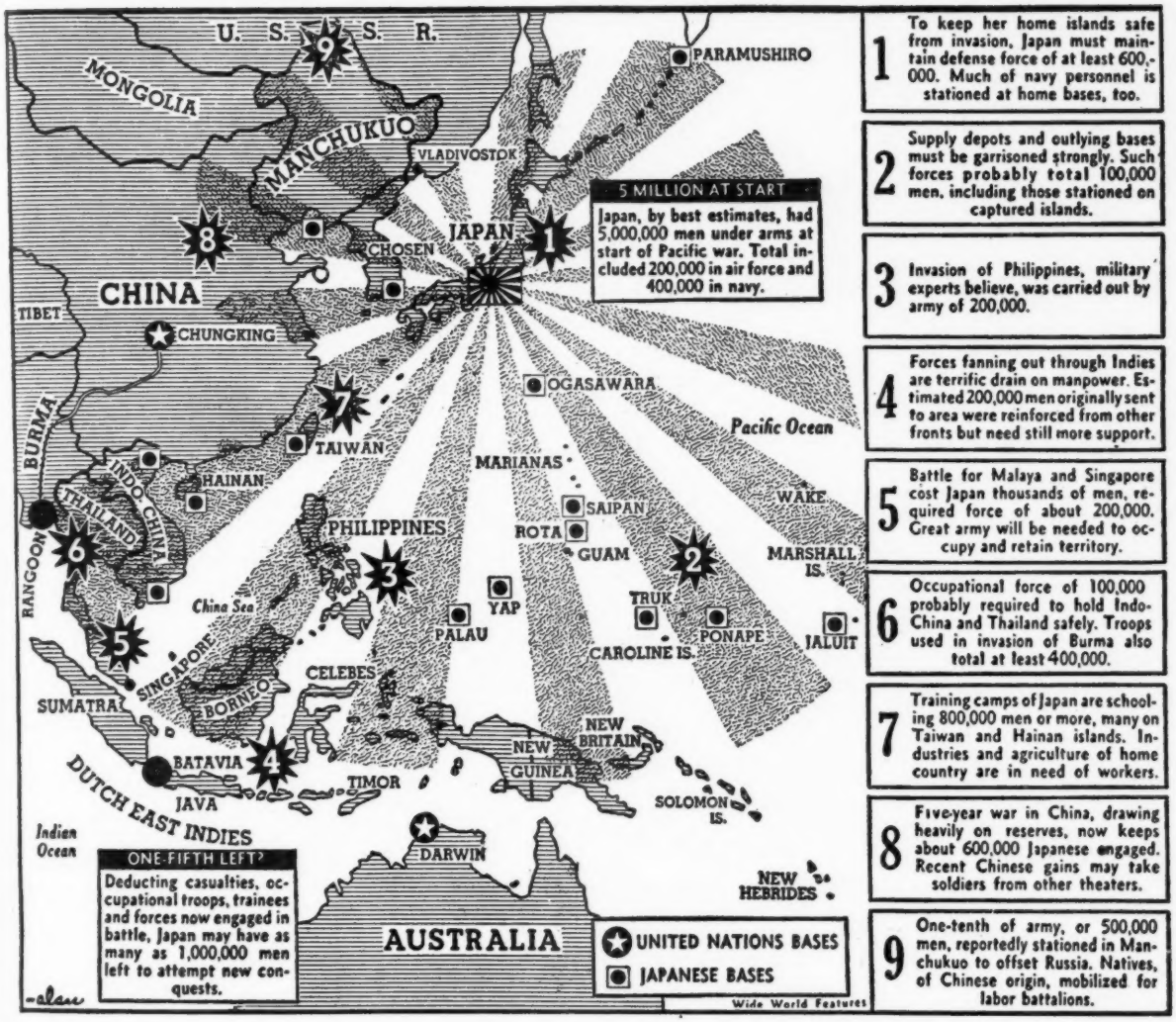
"Manchuria is the life-line of Japan, but the source of her raw materials and the market for her manufactured goods is far to the South of this territory, in the regions which constitute South Asia, the Malay States, the Dutch East Indies and the South Sea Islands. . . ."

(*Japan Times Supplement*, June 30, 1933): "Japan's feeding line lies in South Asia. . . . There, vast territories and enormous products await the Japanese people. The great natural resources of the South Seas are to feed the Japanese people. . . . There is sufficient room in the South Seas to feed 500,000,000 people. . . ."

In the pursuit of these aims all methods were employed, such as the negotiations conducted by Mr.

[1] Harper and Brothers, New York. Reprinted, 1942.

[2] Baron Tanaka's memorandum of 1927 (usually referred to as *The Tanaka Memorial*); the declaration of the Japanese government of April 17, 1934, in which they virtually demanded the establishment of a Japanese protectorate over China; and the pamphlet published by the Press Bureau of the Japanese Ministry of War in October, 1934, in which Baron Tanaka's plans were formulated in greater detail.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MONGOLIA
MANCHUKUO
VLADIVOSTOK
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JAPAN
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CHUNGKING
BURMA
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BORNEO
NEW BRITAIN
NEW GUINEA
BATAVIA
JAVA
TIMOR
SOLOMON IS.
DUTCH EAST INDIES
Indian Ocean
DARWIN
NEW HEBRIDES
AUSTRALIA
5 MILLION AT START
Japan, by best estimates, had 5,000,000 men under arms at start of Pacific war. Total included 200,000 in air force and 400,000 in navy.
ONE-FIFTH LEFT?
Deducting casualties, occupational troops, trainees and forces now engaged in battle, Japan may have as many as 1,000,000 men left to attempt new conquests.
UNITED NATIONS BASES
JAPANESE BASES
Wide World Features
1 To keep her home islands safe from invasion, Japan must maintain defense force of at least 600,000. Much of navy personnel is stationed at home bases, too.
2 Supply depots and outlying bases must be garrisoned strongly. Such forces probably total 100,000 men, including those stationed on captured islands.
3 Invasion of Philippines, military experts believe, was carried out by army of 200,000.
4 Forces fanning out through Indies are terrific drain on manpower. Estimated 200,000 men originally sent to area were reinforced from other fronts but need still more support.
5 Battle for Malaya and Singapore cost Japan thousands of men, required force of about 200,000. Great army will be needed to occupy and retain territory.
6 Occupational force of 100,000 probably required to hold Indo-China and Thailand safely. Troops used in invasion of Burma also total at least 400,000.
7 Training camps of Japan are schooling 800,000 men or more, many on Taiwan and Hainan islands. Industries and agriculture of home country are in need of workers.
8 Five-year war in China, drawing heavily on reserves, now keeps about 600,000 Japanese engaged. Recent Chinese gains may take soldiers from other theaters.
9 One-tenth of army, or 500,000 men, reportedly stationed in Manchukuo to offset Russia. Natives, of Chinese origin, mobilized for labor battalions.

Matsuoka in 1933 with the Dutch government for the creation of Japanese air bases in New Guinea and with Portugal for the purchase of Macao and the island of Timor, and the extension of Japanese oil and rubber concession rights in Borneo. In this light we must regard the dispatch of an Investigation Commission to Afghanistan, following which, Japanese instructors were invited to teach in Afghan military schools. Through the marriage of an Abyssinian prince to the daughter of a Japanese noble the Japanese were enabled to equip airdromes in Abyssinia and to receive a cotton concession there. In conformity with a similar plan young Arabs were invited from Egypt, Syria, Palestine and Hedjas to be educated in Japan at government expense; Japanese helped draft a program for the industrialization of Irak; new commercial agencies and companies were established in Yemen and in Turkey, thus bringing Japanese strongholds and influence nearer the Suez and Baku, respectively.

Most profitable of all, of course, was the dumping of hundreds of millions of *yens'* worth of Japanese goods (the product of slave labor) on these new colonial markets, because this brought commercial profit and created the grounds for strengthening Japanese military-political influence. This advance was so obvious that even German writers, who were not in the least inclined to expose Japan's military-political plans, remarked that "Japanese trade is a material and important state-political factor. Her aim can be clearly traced: Great Britain, principally, the Asiatic part of the British Empire, and the U. S. S. R.; Great Britain must be systematically squeezed out of the Asiatic colonies and dependencies, and strongholds must systematically be established in the countries bordering on the U. S. S. R."[3]

It will be useful here to recall that this is exactly how Baron Tanaka presented the problem in his memorandum. He wrote:

"In a certain sense, Manchuria and Mongolia are key positions by holding which we can seize the wealth of

[3]Captain Wagner, "Der Politische Charakter des Japanischen Handels," *Deutsche Wehr*, September 20, 1934.

the whole of China. After this we shall subjugate India, the South Seas, Asia Minor and Central Asia, and finally Europe."

The German allies of Japanese imperialism were more familiar with the Japanese plans than any one else. For example, Dr. F. K. Practorius in an article in *Deutsche Wehr,* September 20, 1934, entitled "Die Wehrpolitische Lage der Mandschurei," wrote: "In history great aims are always achieved only by the appropriate means. In the present case it is not only a matter of materially possessing the Chinese Eastern Railway but of political domination in the Far East, in the whole of Asia. Japan has two roads to domination in Asia: She can either confine herself to the struggle for China, leaving other countries, particularly Russia, aside, or surround Manchuria right up to Turkey, and supplement this with domination in the Eastern seas. In the East this will be a line from Manchuria, through Mongolia, Turkestan, Afghanistan and Persia to Turkey, which will mean completely eliminating the influence of Russia and, ultimately, the complete elimination of the American and British strongholds in the East. Many things are urging Japan towards the latter far-reaching aim. Of course, the complete command of Manchuria is a condition precedent for this." (Note: Voluminous statistics document this statement.)[4]

In the pamphlet of the Japanese Ministry of War, we read in this connection:

"In China there is a group of so-called adherents of Europe and America, which dreams of taking advantage of the crisis of 1935-36 to seize Manchuria, and is banking on the fall of Japan's political positions in Eastern Asia. Such activities, in the final analysis, are mistaken from the point of view of the future of China herself and will lead to disorder in the Far East. Hence, in no circumstances must they be tolerated by the Empire. However, these activities will increase or diminish according to whether or not the naval forces of Japan will be crushed by the American naval forces. This is clearly seen from the experience of previous naval conferences, when on every occasion the Empire was subjected to the pressure of Great Britain and America an anti-Japanese movement sprang up in China; and on each occasion intervention became necessary.

"What does Japanese intervention in China proper mean? It means war in the Pacific; it means that the United States and Great Britain must inevitably be involved in the struggle. . . ."

Japano-German Sympathy

It is generally known that German fascism openly expressed its sympathy towards the Japanese militarists. The "coördinated" *Wirtschaftdienst* wrote:

"We Germans have no reason whatever to condemn Japan when she resorts to expansion to satisfy the needs of her state and people. 'Asia for the Asiatics' must no longer be an empty phrase; it must become the fulfillment of a definite demand. If we take the speech Adolf Hitler delivered in the Reichstag on May 17th as the guiding thread we will understand that from the point of view of German National-Socialism we can raise no objection to this policy of 'Prussia of the East.' Over there, in the Far East, a young, vigorous and virile nation is obeying the law of blood and race."

Matsuoka, in the name of Japanese imperialism, as readily blessed Hitler and the Third Reich's plans of conquest, in a (1934) book. He wrote:

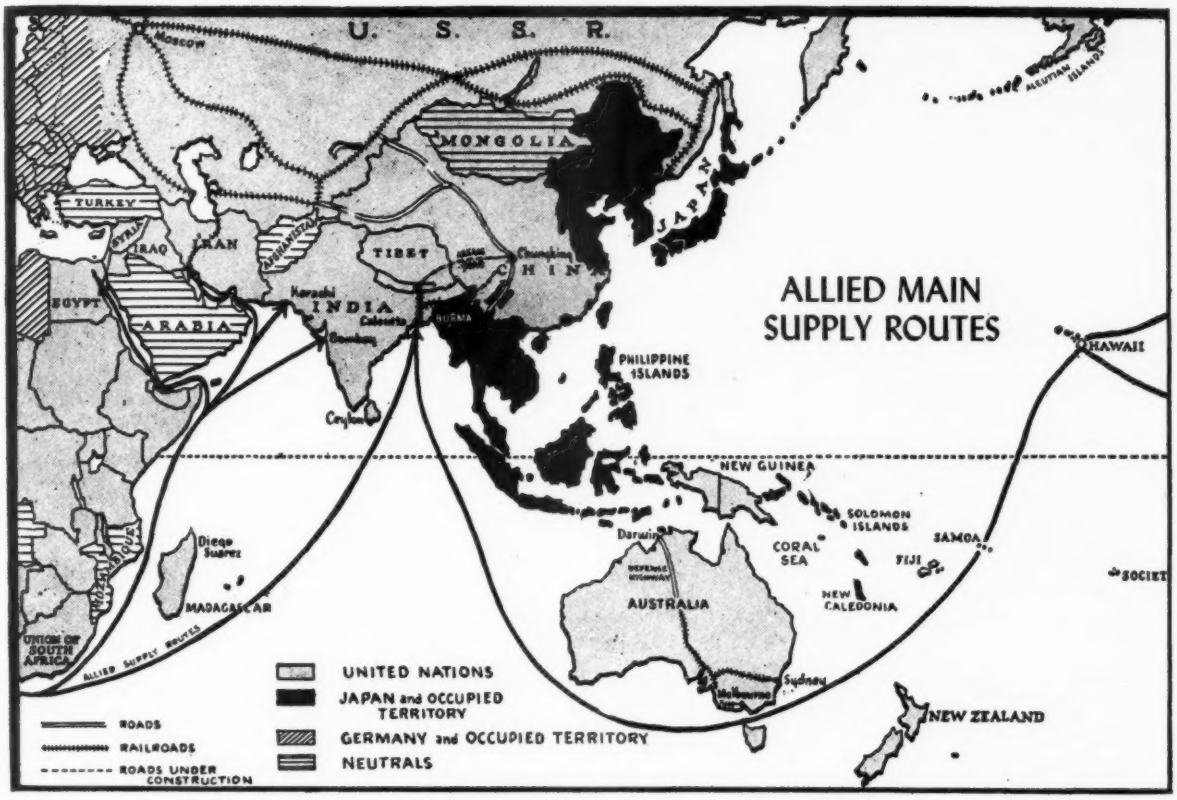
"The German nation mourns the loss of Alsace and Lorraine. Even if Hitler had not come into power the Germans would never have abandoned the idea of restoring these districts to Germany. The Germans are indignant at France for its possession of the Saar and Poland, for its possession of Upper Silesia. By race and even by history these two regions belong to Germany. Hitler's policy is disturbing international peace; but Germany, groaning under the heel of the Versailles Treaty, has no other way out. Hitler is dreaming of creating a Third Empire, by which he means a Great Germany with new territorial frontiers."

From the moment Germany, following Japan, withdrew from the League of Nations, both countries, as pioneers in a new war for the repartition of the world, began to plan practical coöperation. This is not confined to the diplomatic field, as witness the agreement whereby Manchuria was to supply beans to Germany in exchange for the manufactures of the German chemical-war industries and for armaments to be supplied to Japan. We can take it as proved that Germany helped Japan to reëquip her munitions industries and, in particular, in organizing the manufacture of aircraft.

Undoubtedly, German National-Socialists did not do this "for the sake of the beautiful eyes" of the Japanese militarists. Kurt Hesse, in his book, *The Hour of Destiny of the Old Powers,* indicated the hopes they placed upon the outbreak of a Japanese anti-Soviet war. He wrote:

"If Russia is tied up in the Far East it will immediately create a situation in which her Western Neighbors Rumania and Poland, would try to realize their national ideals, notwithstanding pacts of non-aggression like those which were recently concluded between Warsaw and Moscow. But then, Germany, too, will be confronted with the question of rectifying her own Eastern frontiers. After that, the whole of Europe will be set going. . . . If the world today admits the justice of the Japanese demands (and we must say at once that there is no other alternative), the conclusion must be drawn that the place in life that we need, must also be recognized."

[4] In 1935 numerous books dealing with the inevitability of an armed struggle for the command of the Pacific appeared in Japan. The authors of *When Japan Goes to War* cite as examples: Masudzaki Koko, *The Forthcoming Naval Conference and the Navies of Japan, Great Britain and the United States,* with a foreword by Okada and Uchida; Ishimaru, *The Climax of the Antagonisms in the Pacific;* Hirata Sinsaku, *In the Name of 1936;* Vice-Admiral Sosa, *Japan and the Naval Conference of 1935;* Ishimaru, *The Inevitability of an Anglo-Japanese War.*



Other German National-Socialist writers declared still more frankly that their object in banking on Japanese aggression was to weaken the European Powers and thus to clear the road for German aggression. This was expressed with inimitable cynicism by von Leers in *Die Tat* as follows:

"We do not idealize in the least the Japanese. Nor do the Japanese idealize us. Nevertheless, there are very important points of contact between the two countries and the two nations, certain real common interests and a spiritual kinship. In politics we cannot expect all our friends to acquire blue eyes and to become blondes to please us. Politics are a matter of real interests of nations and have little in common with race kinship. From the standpoint of our position we are interested in the prosperity of every non-European Power. Every such Power will bind the forces of our neighbors and thus will release the German forces. The ascendancy of Japan, which is the strongest non-European Power, means strengthening the positions of Germany, particularly since the Franco-Soviet rapprochement." (September, 1934.)

Anti-Soviet Considerations

As to Russia, the nature of the plans entertained by the aggressive wing of Japanese imperialism can be judged by a statement in late 1935 in the semi-official Japanese newspaper, *The Harbin Shimbun,* mouthpiece of the General Staff of the Kwantung Army:

"Policy towards Russia must be built up on the understanding of the slogan: Asia for the Asiatics. The value of the Russians for Asia is beneath consideration, and we emphatically deny that the Red Russians have any economic and political culture, or that they have made any contribution to such culture. If the three great elements of the world are Europe, Asia and America, then the thing called Russia is absolutely superfluous. We declare that our policy is to eliminate Red Russia from Asia and to clear Asiatic territory of the adventures of Red Russia. There are certain types of people who talk about the independence of Siberia; others in their sleep see visions of the independence of the three regions, with their sparse population and inconvenient geographical position, can create an independent state and exercise independence. In the epoch when Japan and Asia were hemmed in, when the light came from the West, Asia perhaps needed the Russians; but now, when asphalt roads have replaced the old deep-rutted roads, the Russians are superfluous baggage. A people which lacks the ability and forces to create culture and civilization has no future except the road of doom and collapse. The land East of the Urals and the Altai is Asia. It is the place for the expansion of Japanese culture. In that Northeastern corner of Asia the influence of Japan must become supreme, and Japan must strive at least for the lands East of the Baikal. This is the slogan that is before the eyes of the Japanese. Our policy towards Russia is expressed in that slogan. . . ."

The real reasons, however, for the anti-Soviet activities of the ruling circles in Japan were formulated in a resolution previously adopted at a meeting of "the representatives of business circles" convened in the autumn of 1933 by Mr. Hirota, Japanese Minister of Foreign Affairs, to discuss the problem of Japano-Soviet relations. The resolution read in part:

"The main policy towards the U.S.S.R. was set forth in the Japano-Soviet Convention concluded in Peiping. In view of the existence of this convention a pact of non-aggression is superfluous; but if the U.S.S.R. desires to conclude such a pact owing to the changed situation in the Far East and the creation of Manchukuo, Japan may agree to conclude one if the U.S.S.R. agrees to the following conditions: (1) The absolute cessation of the revolutionary movement in the Far East, particularly in Manchuria and Japan. (2) The withdrawal from the Far East, and particularly from the frontiers of Manchuria, of all military contingents. (3) The repeal of all laws imposing restrictions on Japanese enterprises in the Soviet Far East; in particular, to carry out fair measures at the fishery auctions, to abolish import duties on all articles required for the fishing industry, and to modify the regulations governing the hours of labor; in regard to oil concessions, to conclude an agreement concerning the sale of oil in Japan, to prolong the period of oil prospecting, to lengthen the working day, and to modify the inspection regulations; to modify the regulations and control of the production of coal. (4) To permit the opening of new Japanese enterprises in the Far East (Soviet) and, in particular, to grant Japan lumber and mining concessions. (5) To develop Japano-Soviet trade and to abolish its one-sidedness so that as much, or more, is purchased from Japan as Japan purchases. (6) The immediate surrender of the Chinese Eastern Railway."

This resolution is supposed to enumerate the terms of a pact of non-aggression; in reality it is a masked enunciation of a program of war containing demands which reflect the interests of different strata in the camp of the ruling classes of Japan. But that only enhances its significance!

Speaking of the Russian fortified areas created on the Far Eastern frontiers, General Koiso, Chief of the General Staff of the Kwantung Army, said:

Restraining Influence

"We did not suspect that the Russians were capable of performing such perfect and rapid work. We are surprised at their ability to build, and astonished at the sums they have spent on these fortifications."

From this necessarily followed attempts to compare Soviet achievements in strengthening its defenses with the military strength achieved by Japan. It must be said that in a number of cases the achievements in regard to reëquipping and reorganizing the Japanese army have been understated. Such was the opinion expressed by Nagaoki, who is regarded as an expert on Asia. He said:

"The military forces of the U.S.S.R. greatly exceed the forces of the Japanese army at the present time. It is particularly important to bear in mind that modern warfare is scientific warfare, and, however well troops may be trained ideologically, they cannot fight against the forces of physics, chemistry and mathematics. To count on victory in a hand-to-hand struggle against excellent airplanes, tanks, machine guns, etc. would be too much to expect of soldiers, however brave they may be.

"Moreover, not only the question of armaments is important. Modern war is not only a struggle with the aid of armaments; it is also rivalry between the economic power of countries. As the Japanese dislike Communism, they dislike the successes of Communism in the U.S.S.R. Hence the tendency to deny the fact that Communism in the U.S.S.R. has had a certain amount of effect. This is not the time to conceal the actual situation in the U.S.S.R. out of fear of Communism." (*Osaka Mainichi*, March 15, 1934.)

Although this may be an extreme opinion, the Red Army's superiority in aviation, mechanization, infantry, artillery and cavalry was very widely admitted in Japan. This opinion was expressed by the members of the Japanese Upper House early in 1934 in an interview with the then Minister of War, Lieutenant General Araki. They said: "It is the duty of the soldier to die on the battlefield, but we do not wish to die in our homes from air bombs dropped by the Soviet airfleet."

As an example of "glancing back at the U.S.A.," we will quote the opinion of a Japanese naval officer who said:

"We will try once again to depict the international situation that will precede the great world war.

"If we can assume that Great Britain is doing all she can to drag Japan into a war against America we can be quite certain that America, on her part, in order to insure victory over Japan, is burning with the contemptible desire to turn the latter against the Soviet Union.

"For example, we, of course, know the source of the rumors that have been persistently spread everywhere recently about a Japano-Soviet war. But even in our military circles we often talk about the impending great Japano-Soviet war. What will happen to Japan if she is compelled to wage war against the U.S.A. and U.S.S.R.? Will she not be in the position of Germany during the great World War? Surrounded by the enemy at the front and in the rear, and not nearly so well prepared as Germany was before the World War, will Japan be able to fight?

"Probably the Soviet Union would like to pick a quarrel; in that case we shall have to operate simultaneously in the East and West.

"There is certain order in military operations. One's forces must be concentrated and hurled against the principal enemy, against the main target. Undoubtedly that main target is the U.S.A.

"Our plenipotentiary, Matsuoka, on his way to Geneva, stopped in Moscow and proposed that the Soviet

government conclude a pact of non-aggression with Japan on the condition that the U.S.S.R. recognizes Manchukuo. Matsuoka says, 'Of course there are a number of bad sides to the position taken by the Soviet Union, but those who are opposed to concluding a pact with the U.S.S.R. evidently do not realize the seriousness of the danger of 1935-36.'

"However, we are not in the least afraid of the Soviet Union. On the contrary, we know from reliable sources that it is afraid of Japan.

"Meanwhile, America, weighing up the situation, has offered her coöperation to Soviet Russia, which the latter has accepted.

"In this connection it may be said without exaggeration that we must not belittle Russia. She may play the rôle of the wolf stealing in by the back door. It is necessary also to strengthen our friendship with the U.S.S.R., otherwise a Japano-Soviet war will break out.

"If, however, Japan fights the U.S.S.R., the U.S.A. inevitably will intervene. It cannot be said with certainty whether, in the final analysis, a second world war will break out, but we can be quite sure that in this war Japan will undergo very severe trials."

Japanese Militarists' Views

There is ample evidence to substantiate the belief that the Japanese plan in 1933-36 definitely contemplated war with Russia prior to becoming involved with America:

"During the past few years (early thirties) Japanese military and naval circles have attached increasing importance to the Northern direction as the most dangerous of all possible directions of operations in the future war in the Pacific. It is believed that with the present relations of naval forces and naval bases of the U.S.A., and of Japan, the Japanese navy would enjoy a number of advantages in the Central and South Pacific. These advantages arise from the fact that the principal bases of the United States navy are extremely remote from Japan and the Asiatic mainland. The (ship-route) distance from Panama to Pearl Harbor, (Honolulu) and from the latter to the coast of Japan is 10,800 miles. Hence, a fleet operating in this area would need a cruising range of 25,000 miles merely for a return voyage, allowing a few thousand miles in reserve for maneuvering purposes. Even with bases in Hawaii, the cruising range would have to be about 12,500 miles. . . . America cannot use Guam and the Philippine bases, which are nearest to Japan because, being insufficiently fortified, they can be captured by the Japanese fleet before considerable American naval forces can be concentrated there. Moreover, the approach to these bases from the American coast is threatened in front by the Bonin and Marianas Islands, and on the flank by the Caroline and Marshall Islands, on which, in violation of international agreements, Japan constructed submarine and air bases and anchorage for its surface fleet. . . .

"The position in regard to the Northern route is different. First, the distance from the coast of America to the coast of Japan is considerably shorter—not more than 3,000 miles—and shorter yet from the last group of the Aleutian Islands. A fleet operating here will need a cruising range of 8,000 miles only. Moreover, this route is not intersected by Japanese mid-ocean bases. . . . Japanese naval experts therefore believe that the security of the Northern route is now the most important problem in the plan for an anti-American war in the Pacific. . . ."

During the period of Japanese intervention in the Soviet Far East, General Saito wrote: (*Japan and America*).

". . . Look at the map and study the position of Petropavlovsk Bay, which lies nearer to the Southern end of the Eastern part of the Kamchatka peninsula. If a powerful American fleet establishes itself there, the command of the North Pacific will pass to America. Even if our Empire possesses three squadrons of eight battleships and eight large cruisers, our navy will be unable to do anything there. . . .

"Only one conclusion can be drawn from this, i.e., the U.S.S.R. must be dislodged from the Pacific Coast and the latter seized and fortified before the outbreak of the Japano-American war. *Hence, war against the U.S.S.R. must precede war against the U.S.A.*

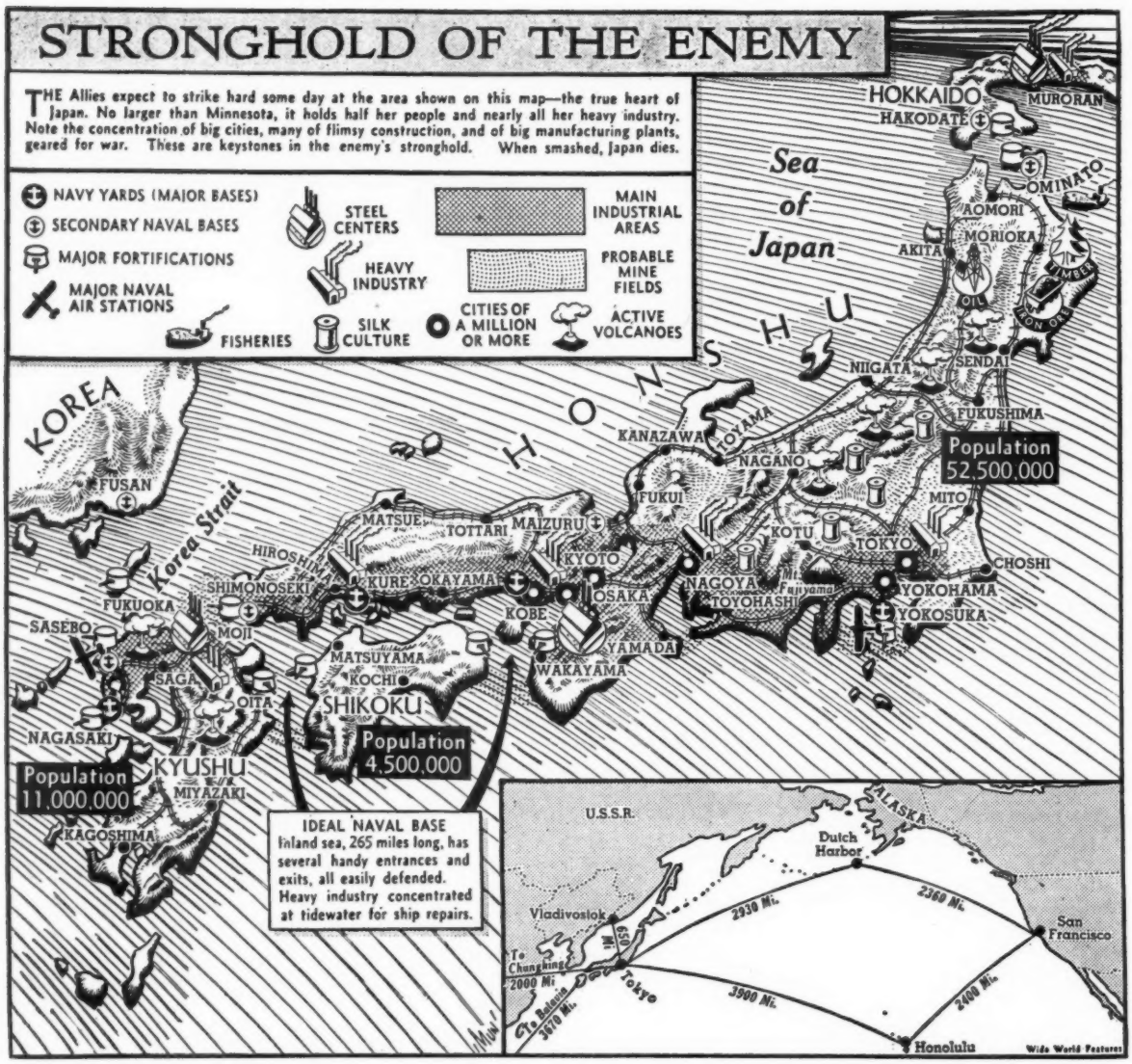
"Thus, before entering into a decisive conflict with the U.S.A. Japan must defeat the Soviet Union and in that way so fortify her position as to be able to come out fully armed with a secure economic base and advantageous strategic positions in the impending war with the U.S.A. for the command of the Pacific."

This argument is accompanied by demagogic "proof" that Japan, generally speaking, could agree, if only temporarily, with the United States on disputed questions, whereas it was impossible to come to an agreement with the U.S.S.R.

The Fascist writer, Furuya Eichi, stated:

"The U.S.S.R. has reached the very gates of Japan. It is the U.S.S.R. that manipulates the Communist Party of Japan like a puppet and is destroying her (Japan's) pillars of state. This rôle cannot in the least be compared with America's. America is a powerful country; the U.S.S.R. is not such yet. But when the latter has settled its internal position and becomes powerful it will cause Japan incomparably more trouble than America. The conduct of America is more or less that of a gentleman; the U.S.S.R., however, is Japan's mortal enemy.

"America wants Japan to be stronger than the U.S.S.R. in the Far East. It is not in the interest of America to crush Japan entirely because she knows that there is no other power that could combat Communism, which has spread over the continent (of Asia). Is it not clear, therefore, why Russia is Japan's principal enemy? . . . Nevertheless, the problem of maintaining its positions in China is not only a problem that confronts Japanese imperialism in its struggle against the U.S.A.;



it is the premise of success in the struggle for the command of the whole of the Pacific, because both for a war against the U.S.S.R. and for a war against the U.S.A. Japan must utilize a part and even a great part of China."[5]

From these general considerations the leaders of the militarists proceed to the concrete "dangers" threatening Japan from the side of the U.S.S.R., and in this connection they enumerate the well known objects of seizing the Soviet Far East.

Germany also adds stimulus to this thesis:

". . . From this the conclusion is drawn that frustrating the Five-Year Plan and provoking anti-Soviet war must be complementary phases of Japan's drive against the U.S.S.R. Every year's delay in this drive enables the Soviet Union to grow stronger and consequently, in the final analysis, will make the realization of Japanese plans impossible. . . . Japan must wait no longer, because the measures adopted by the U.S.S.R. in the Far East may strengthen its position to such an extent as to nullify all chances of Japanese success." (*Militär Wochenblatt*, No. 34, 1934.)

The Japanese militarists leaders, however, knew perfectly well that even their capture of a section of Soviet territory would not constitute the decisive defeat of the enemy. As S. Hirata, (*Bungei Sindsyu*, February, 1933) correctly wrote:

"If Chita and Irkutsk were vital centers of the Soviet Union the situation would be different; but Far Eastern Siberia is a second-rate raw material territory of the Soviet Union, and a battle on its frontiers would not represent a crushing blow. Even if it suffered several defeats in succession, the Red Army would not be disabled. . . ."

[5] "Who Is Japan's Real Enemy?" in *Nihon Oyobi Nihonjin*, May, 1933.

Editorial Comment

The authors of *When Japan Goes to War* then, in five succeeding chapters, proceed carefully and exhaustively to analyze the natural resources of Japan and her possessions, the nation's productive and manufacturing capacity, *as of 1936*. They conclude that after the first year of a *major* war the strain proportionately will become unendurable for Japan. Since 1936, we are well aware of the fact that Japan has supported five years of undeclared war with unconquerable China. And while Japan recently has acquired considerable territory in the South Pacific area and now is a *have* nation, her material losses probably have equaled if not exceeded her immediately usable gains. We should not underestimate, however, Japan's organizing capacity.

The answer to the present predominant question—Why did Japan change her 1936 plan to attack Russia and, instead, drive initially to the South and East leaving her "back door" open to Russia and her "skylight" open to the United States—has not been made public; but Germany's long existing influence over Japanese strategic operations is only too evident.

Japan unquestionably made her momentous decision to attack the United States when Germany was threatening Moscow and believed that Hitler could contain Russia on the European Front, making it unprofitable for Russia to open an Asiatic Front against Japan. In this connection it must be recalled that the momentum for Japan's initial attack of December 7th was well under way prior to the Battle of Roskov (Russia's southern flank) on November 28th, which became a turning point in the German-Russian conflict. To strike Russia prior to a Japano-American war was undoubtedly Japan's original intention. But due to her "Unholy Alliance" with the Nazis and her premature assumption, in the fall of 1941—that Moscow would fall to Germany, and that much of the strength of the Soviet would be curtailed—her change of plan was precipitated. It seems likewise indisputable that Japan was forced into the war *ahead of her own original schedule* and in a direction that she had planned for her *second* phase of conquest.

To be sure, Hitler's publicized rendezvous with Japan in India, if successful, might have accomplished both of Japan's objectives: by furthering Japan's effort in China and in crippling her long despised enemy, Russia, thus enabling Japan, at her leisure, to realize her ancient ambitions in Soviet Asia.

Japan, for her part, has dominated much of the South Seas, has cut the Burma supply line to China, and now threatens India; while Germany, behind schedule, still strives to interrupt the United Nation's supply lines to Russia and Britain, even at the expense of exposing her flank to the Allies and of creating a dreaded Western Front.

On the other hand, neither Germany nor Japan is willing to wholly trust the other. Germany now appears more concerned about her own selfish hide, while Hitler's obviously waning affection for his Axis signatories and Quislings is significantly important.

In view of the present war situation, it is quite possible that Hitler, having double-crossed Italy, France, and other countries under his "benevolent protectorate," has also played Japan for a "sucker" in his effort to divert the non-Axis effort from Germany to the East. Japan, on the contrary, in a deliberate desperate effort to justify her military expenditures and unify her internal factions probably believed that she must strike "now or never" and was willing to *gamble* her fate on a possible quick grab of the South Seas territory, Burma and India before America, China, Russia, and Britain could assemble their means to intercede. From the point of view of *grand strategy* it appears, at the date of this writing, that Japan has more accurately estimated the situation than has Germany—with the possible exception that she definitely has underestimated the non-Axis long-term war potentiality.

Japan, in spite of her initial successes, already is overextended and her war machine certainly has not survived the ordeal without considerable wear and tear! China, despite the drain of her long war, is still a power with which Japan must reckon. What if Russia decides to anticipate Japan's ultimate intentions and beat her to the punch? *Russia now finds herself in a key position!*

In any event, *time* will work against Japan. Finally, when the full impact of the non-Axis war resources can reach and strike her, the *Rising Sun* inevitably will set.

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MANUSCRIPT DEADLINE DATE NEXT ISSUE, JULY 5th

Soviet Cavalry Operations

By Colonel P. Karpachev*

THE use of powerful machinery and mechanized weapons in battle is characteristic of modern warfare. In modern war, engines have influenced tactics and modified the order of battle. However, it has not by any means diminished the importance of the cavalry.

The cavalry if plentifully supplied with machinery and mechanized weapons is still powerful, and is not only capable of defending itself against tanks and armored cars but can destroy them wholesale. This has been convincingly demonstrated by the Soviet Cavalry in these nine months of war.

Both in the early defensive state of the war and during the vigorous counter-offensive, the action of Soviet cavalry discredited the theory of certain shortsighted military experts that the days of the cavalry as a fighting arm were over.

In the first stages of the war when the enemy's panzer troops were pressing eastward into the heart of our country, the cavalry formations acting in conjunction with other arms heroically fought to stem the fascist assault. They stubbornly defended every inch of ground and inflicted heavy losses on the enemy.

The main duties of the Red Cavalry were as follows: They struck at the flanks of advanced enemy bodies, operated on the flanks of their own armies to cover their retreat and helped defend important strategical points and lines and operated in the enemy's rear.

The Cavalry's defensive operations were active and resolute. Here is an example of the Soviet Second Cavalry Corps that was assigned to occupy a defensive position on the Reut River, and by vigorous action was to cover the retreat eastward of one of the Soviet armies. A small body was detailed to occupy a favorable position along the Reut River while the Corps' main forces were concentrated on the flanks in order to strike at the advancing Rumanian First Royal and the Third Infantry Divisions and the 50th German Panzer Division. The

*Soviet Cavalry.

enemy, engaged in battle with the cavalry, was suddenly attacked by the striking forces. All the enumerated groups were routed and the Soviet Army was able to retire in good order to the south bank of the Reut River and there organize its defenses.

A highly instructive instance of the action of Soviet cavalry in liquidating the enemy thrusts is furnished by the operations of the Second Cavalry Corps in the vicinity of Balta. Mobile enemy groups were approaching Pervomaisk. The Second Cavalry Corps was ordered to reach the Balta area by a forced march and to strike at the flank of the enemy's wedge. In two days the Corps covered a distance of one hundred kilometers through roadless country fighting all the way and then by a sudden blow shattered the enemy's 293rd and 297th Infantry Divisions and the 19th Motorized Division recapturing the town of Balta and liquidating the thrust at Pervomaisk.

No less successful operation of this type was the flank attack moving from the District of Krichev-Chausa eastward with the aim of seizing Roslavl by a lightning blow and turning the flanks of the Soviet Army operating north of Roslavl. The Soviet Cavalry was ordered to strike at the flanks of the enemy's Krichev group and to prevent him from seizing Roslavl.

On August 2, 1941 Soviet Cavalry made a sudden assault and an unexpected artillery offensive: 30 enemy tanks, 50 truckloads of infantry and two trenchmortar batteries were destroyed near Shumovka-Ponyatovka.

This war has shown that the cavalry can not only stem the advance of the enemy's panzer troops but can also annihilate whole tank formations. An instance of this type of action was the Shtepovka operation successfully effected by the first Guard Cavalry Corps.

The enemy's panzer troops were speeding eastward toward Suman threatening to surround one of our armies. The Soviet First Cavalry Corps augmented by tanks was ordered to stem the enemy's advance. By a series of vigorous movements the cavalry surrounded the German ram near Shtepovka and routed the 9th Tank and the 25th Motorized divisions. In this battle our troops also captured considerable other military equipment, 300 trucks, 8 passenger cars, 180 motorcycles not counting those destroyed.

The duty of Soviet cavalry, when acting in the enemy's rear, is to destroy his communications, transports, stores, headquarters, manpower and armaments.

Highly successful raids of this kind were made by units of the Second Guard Cavalry Corps. In one zone of operation from August 23rd to September 2nd, 1941, it routed the German 430th Infantry Regiment, wrecked headquarters, two other regiments and the topographical department of the 6th German army, killed 2,500 German soldiers and 19 officers, destroyed 200 trucks, four armored cars, two tanks, 4 guns, six trenchmortars and 30 heavy machine guns and captured 65 machine guns, 1,500 rifles and automatics and a large number of horses, machines and other equipment.

These examples show that when properly and skilfully utilized, cavalry units and formations are capable of accomplishing any task set them.

Beginning with December, 1941 the position of the Soviet-German front was markedly changed.

Having worn down the enemy in previous battles the Red troops passed to a counter-offensive. On a number of sectors they drove the enemy out of his fortified positions and without allowing him to entrench himself began to drive him westward.

In offensive actions the Red Cavalry is used as one main force in routing the enemy's groups. It is chiefly used for flank attacks, for widening breeches in the enemy's defenses by turning his flanks and by pursuing him in retreat.

Our offensive has furnished many examples of bold, resolute and daring actions. On the sixth of December our First Guard Cavalry Corps by a flank blow near Venyev and Stalinogorsk routed the 17th Tank, 29th Motorized and 167th Divisions of Guderian's group. This enabled our troops to advance rapidly, while on the 7th of December the Soviet Army on whose flanks the Guard Corps was operating inflicted severe defeat on Guderian's troops by a vigorous counter blow. The enemy was driven out of his main defense centers and abandoning armaments and leaving the field strewn with dead and wounded, retreated westward.

Highly significant was the action of our Second Guard Cavalry Corps near Ruza, December, 1941. Unable to withstand the assault of our troops near Ruza, the enemy began to retreat west and southwest. An order to prevent the enemy from breaking contact with the Second Guard Cavalry Corps was launched against the retreat of his lines. Routing the enemy's rearguard, the cavalry cut the German lines' retreat and by a dashing attack annihilated his 78th Infantry Division and captured 40 guns, 200 trucks, numerous wagons and wireless sets and other equipment.

These instances demonstrate the important part played by the cavalry in the Soviet peoples' patriotic war against German fascism and the wonderful effectiveness of its action when properly directed and closely combined with the action of the other arms.

Cossacks of the Don, Kuban and Terek, and the collective farmers of the Northern Caucasus have risen to reinforce the Soviet Cavalry whose fame is spreading far and wide. These popular levies are burning with eagerness to enter the battle and to demand an account from the fascists for all the atrocities, robberies and violence they have perpetrated on the Soviet people.

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"Organization is the servant of tactics and not its master."

At Soviet General Dovator's C P*

*By Eugenie Krueger***

MAJOR-GENERAL DOVATOR is one of the most outstanding Soviet cavalry commanders now fighting with his Cossacks on the Moscow front. For daring and courage displayed in fighting, his unit—the 3rd Cavalry Corps—was a short time ago renamed the 2nd Guards Cavalry Corps.

Finding Major-General Dovator's headquarters is no easy job. One can imagine the difficulties of the Germans in the days when his Cossacks wrought havoc in their rear, considering that on this side of the front we spent a full day in trying to locate the headquarters of the Cossack Guards. Finally, we were given the most accurate and precise direction: "Look for Dovator where the fighting is hottest."

This was not so simple either, for fighting today is quite hot on all fronts around Moscow. Nevertheless, we listened to the advice and actually found the Guardsmen at a place where the most heated battle was in progress. Clouds of smoke were rising from beyond the forest and the air was rent by the booming of artillery and A.A. guns, the roar of exploding bombs, the clatter of caterpillars.

* * *

Precisely in such conditions Dovator's cavalrymen feel at home. They are always sure to appear where they are least expected—particularly by the enemy. Such was the case recently when the Germans broke through near a very important point, and for 24 hours mounted Guardsmen raced from one flank to another, through forest and across rivers covered with a thin crust of ice, without pausing to rest, to reach the place where danger threatened, where help was needed at once, for in this situation every minute was precious.

The Guardsmen went into action immediately on arrival and checked the enemy. They still recall their excursion into the German rear, when 3,000 horsemen, with Major-General Dovator at their head, broke through the front line and for many days, behind the back of the German generals, smashed headquarters, dispersed transports, and broke communications, with the result that the German generals were thrown into a panic. Only in a state of panic could an Order be issued announcing to the German troops that, contrary to rumours, not 100,000 but not more than 18,000 Cossacks had penetrated their rear.

Actually, there were only 3,000. They twice scattered the headquarters of the 6th German Army. The topography department of the headquarters was completely wiped out. Once, from an ambush, they blew up 56 motor vehicles. Under the very nose of the Germans, far in their rear, the Cossacks mined the highway. The first lorry of a column was blown sky-high and blocked the way for the rest. The Cossacks opened machine-gun fire. The main thoroughfare in the German rear presented an ugly sight. And the Cossacks then turned off the main thoroughfare on to quieter roads.

These were the days when they moved across enemy territory, and as they raced through the villages, squadron after squadron of them, singing Cossack songs, the people ran out to welcome them. The German Command was compelled to form a special detachment to fight against Dovator's group. Soon the German major who headed that detachment, together with his staff, were seized by the Cossacks. Completing their raid, Dovator's Cossacks fought their way back across the front line and rejoined the main Soviet troops. Many people still remember this raid—particularly the enemy.

* * *

Today Dovator's Cossacks are fighting for Moscow. We met them in one of the most difficult sectors of the front. The day was drawing to a close when the Major-General returned from the main line to his headquarters. Without pausing to remove his coat he walked over to the table and unfolding a map proceeded to explain the situation and the plan of subsequent operations. His speech was quick, laconic. Giving little time to minor details he tried to make everybody understand his main idea. His enthusiasm is contagious, his speech picturesque and expressive. This is how he speaks of his Guardsmen:

"Our weapons? Rifle! Sabre! Hand-grenade! Fire-bottles! There is one of my commanders. Believe it or not, he once got on a horse and attacked a tank. Queer chap. But what can you do with him if he actually did destroy the tank. And he is by no means young. I scolded him, but inwardly I thought: This old boy is made of real stuff, he is a real Guardsman!"

The door opened to admit Issa Pliyev, Guard division commander.

"Pliyev had a characteristic battle here," Dovator began. "Our favorite sport is striking blows at the flanks. In a complex situation we decided to cut the German communications. With small forces at his disposal Pliyev successfully waged a two-day battle and himself led the cavalryman into attack. Never was it necessary for me to go in person to help improve the position in Pliyev's division or in the division under Brigade Commander Melnik."

The Major-General again bent over the map and gave the final orders. After a curt "Everything will be done as ordered" and a salute the commander left.

Dovator, his eyes on the retreating figure, smiled as only a friend can smile.

"You know what those words mean? Only one thing—he will dislodge the Germans!"

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*From *The British Cavalry Journal.*

**War Correspondent.

THE COSSACK

By Lieutenant Robert B. Rigg, 106th Cavalry

TODAY, as in the past, the Cossacks are adding important chapters to the wartime history of horse cavalry. In World War I the Cossacks were the first Russian soldiers to alert themselves and start for the Russo-German border which they crossed within twenty-four hours after war had been declared on Imperial Russia.

In his memoirs, the French General Foch stated that, ". . . the Cossacks saved Paris." His reference was to the great number of German soldiers who were required to stem the Cossack's drive to Berlin at a time when those soldiers might have swung the balance in Germany's favor on the *Western Front*.

World War II finds new and old Cossacks on the offensive against a powerful mechanized foe. Full light has yet to be shed on their current actions, but their success alone is enough to prove the great value of the soldier on horseback.

Training

No accident is this present day success of the Cossack. Their Spartan training methods are producing results in the field of battle.

The *Kazak*[1] is an exceptionally well trained horseman and soldier. He has been taught to face any situation, and never to be surprised by changes. All are trained to a philosophy which produces soldiers who, when faced with an obstacle, have not the least hesitation in taking the offensive.

From the onset of his military career the Cossack is taught that he, by virtue of the rigid training he undergoes, is equal to several times his number in enemy soldiers. He is told why this is so, and it generally amounts to just what Cossack officers do stress—hard training under field conditions. Cossacks spend the larger portion of their training time in the field. Not only is he taught that he can oppose superior numbers of enemy, but in their training he is told to expect opposition of superior strength. Consequently his stability is never jarred when he finds the situation this way. It is, however, the application of a RIGOROUS TRAINING PROCEDURE, and sound DISCIPLINE in the course of it that makes the *Kazak* feel superior.

The Cossack as an individual is a hardy, fun loving, prank playing soldier. He is rough in manner but decently educated. He never forgets that he is above all a soldier first. He is inclined to seek fun in the course of his training, and for that reason Cossack officers make all aspects of training dynamic so that no interest will be lost. A typical example of this is to be found in the *djigitovka* which does much to maintain spirit in the Cossacks military routine. This will be discussed further on.

Officers make every effort to see that their men develop individual prowess. Pride and care in the development of the Cossack's horse is one subject which does not need to be stressed by officers for it exists with every man. Teamwork in a Cossack unit starts with the combination of man and animal. No greater team can be found than the Cossack and his horse.

". . . the battlefield is not the place to discover or develop daring."

[1]The Russian word for Cossack.

". . . it develops the body in QUICK ACTION, and the mind in QUICK THINKING."

A soldier's qualification for a place in the ranks of any organization is not reckoned from the length of his training or experience, but from his proven excellence in horsemanship, arms, and general soldiering. Commanders have no hesitancy in leaving a vacancy in their ranks if they do not feel the soldier is fully qualified. "It is better for an officer to have two who are good, than twenty who might be a burden," is a favorite saying of theirs. The Cossacks also like to say that the most important part of the saddle is the girth because one depends most on that part. They view their organization with this same simple logic which places importance upon individual soldier, his training, and his ability.

Horsemanship

In horsemanship the Cossack chooses to start where many leave off. To the *Kazak* the horse is a weapon, which should be just as handily used as a rifle or machine gun. He therefore is to be seen riding or using his mount in a variety of forms. Horsemanship as the Cossack regards it, is only of value if it has practical application to his military purpose. His riding form varies with what he is doing, and at times the foreigner might think that he is inclined to be careless as regards his horsemanship. However, this is not the case if the true facts are examined. No cavalrymen can ride in close order drill with more dress and precision than the Cossacks, yet in the field when riding fast and long the Cossack does not maintain uniformity in his position in the saddle as some other cavalrymen do. His riding varies in form with what is required of him, speed, endurance, cover, etc.

Djigitovka

The term *djigitovka* is used to describe the Cossack's well known exhibition of horsemanship and daring. Stunts performed in a *djigitovka* are the Cossack's most difficult and daring. They were originated years back, and the American cowboy borrowed a few though not the more spectacular ones. Too few realize that in this stunt training the Cossack is achieving more than just a better balance in the saddle. The *djigitovka* has an

important place in the military training of the soldier . . . it develops the body in QUICK ACTION and the mind in QUICK THINKING, and schools the Cossack in accepting danger as a normal part of his daily routine. The ability to THINK and DO in a crisis requires a poise and coördination which is not easily developed. Participation in the *djigitovka* is on a competitive basis, and all seek to take part in it. As it is regularly scheduled preparation for it becomes a part of training, and it is in this that the Cossack develops the skill and precision which not only serve to make him a daring horseman, but a soldier who can meet any situation.

According to the Cossacks the battlefield is not the place to either discover or develop daring. It must begin long before it is necessary to put it to real use, and needs to be developed in the soldier the same as any other quality. The few injuries which are sustained in stunt riding serve to save injuries and casualties later. A soldier who spills in the *djigitovka* as a result of improper adjustment of his equipment is much better insured against the same thing happening later on when the result would be more serious in combat. This is the Cossack approach to training in horsemanship, and it reveals one very important fact. The Cossack does think always in terms of his ultimate task . . . combat.

The Stunts

There is nothing on a horse that the *Kazak* has not at one time or another tried. They stand on their animals' backs and they crawl underneath their bellies, at the gallop. They pick up objects from the ground while carrying heavy sabres in their teeth. Cossacks can pick up handkerchiefs with their teeth, and this stunt, it might be added, is one of their best. They can ride to a point and halt and jump over their horse's head in almost one single motion, or they can make their animals lie down.

Many stunts originated from military expedients developed in combat. Their horses were taught to lie down in order that the rider might fire from the cover of his mount's belly. Riding standing up in stirrups crossed over the saddle is a normal procedure in one phase of scouting. The reconnoitering Cossack in this position rides up to a hilltop and exposes only his head to peer over it. If suddenly surprised he has only to drop into the saddle, and ride away without the loss of time he might have suffered had he been dismounted.

One amusing stunt which finds its way in many *djigitovkas* is the combination of one man in front of the saddle and riding backward and one man in rear of the saddle of the same horse. The two play cards across the saddle as the animal gallops around.

The Cossack horse is generally smaller than the U. S. Army remount, and for that reason it is well suited for stunt work. The animal is well trained in most cases, and will respond to the Cossacks aids regardless of the latter's position. For combat no man and animal team is more effective than the Cossack and his horse. These and other such stunts serve to perfect this splendid combination for war use.

Morale

The Cossack has never been a pampered soldier. There is no provision for producing a high state of morale among Cossacks except that of SOUND TRAINING. Their *esprit de corps* springs from: pride in their heritage, wholesome competition between individuals, and pride in their horsemanship and skill.

Their distinctive uniforms are also a source of pride with all Cossacks. It is interesting to note that they were the only military units which the Soviet government permitted to keep their former uniforms. Colorings were somewhat modified, but they still retain the same cut of caftan, etc.

Summary

Cossack units are not all horse cavalry. In Cossack divisions they supply their own engineers, artillery, and infantry. In addition they possess some mechanized units which have only recently been developed. However, it has been their horse soldiers working both in organized *sotnias*,[2] and in guerrilla groups who have been so effective against the Nazis in this winter's campaign.

Under the Imperial government the Cossacks[3] conducted their own system of public education, and they were the best educated people in Russia then, outside of the nobility. Under the Soviet government they have continued along the same lines though not playing the political part as much as formerly. However, as before they still are the backbone of the Russian Army.

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[2]Squadrons.

[3]The Cossacks are titled according to their geographical location as Kuban, Terek, Don, Ural, etc.

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No general can be lucky unless he is bold. He must have a spirit of adventure, a touch of the gambler in him.—*General Wavell.*

Red Army AA Battery

IZVESTIA: Use of Small Arms Against Planes, Tanks

Expert marksmanship with rifles and machine guns has often given Red Army infantrymen victory over enemy planes and tanks, IZVESTIA *said in an article published March 20. Stressing the point that cavalry and infantry should always rely on its own weapons in an emergency rather than leaving the job to the artillery or other powerful weapons, the Soviet Government newspaper points to the need for close coöperation between simple and complex arms. The article said:*

THE Red Army possesses powerful war equipment, including special antiaircraft arms. The simplest fighting weapons applied skilfully and according to perfected methods serve to increase the power of our arms. These simple weapons do not replace special, complex and powerful arms, but coöperate with them, providing additional means of destroying the enemy.

The Importance of Simple Arms

Only truly brave, resourceful and cool men can engage a powerful fighting machine with mere rifles in their hands. Any army in the world may well envy the staunchness and fearlessness of the Red Army men. The German generals may learn something from the Soviet rank-and-file—to understand the importance of simple arms in modern warfare. Recently a unit commanded by Kolomiitsev brought down two enemy planes by rifle and machine gun fire. A battalion of skiers commanded by Karpov recently beat off an enemy air raid by machine gun and rifle fire, bringing down a German plane.

Riflemen Bag Aircraft

Red Army men Nikitin, Dorofeyev and Kuzmin, escorting an ammunition train, brought down by rifle fire an enemy bomber which attempted to attack their train. Commissary technician Golomidov brought down a fascist fighter by automatic rifle fire. A unit commanded by Senior Lieutenant Kruchkov in a few days brought down four German planes with fire from antitank rifles. Machinegunner Fedorenko set fire to a Junkers with one well aimed machine gun burst. Red Army man Munk brought down an enemy bomber with several machine gun bursts. Red Army man Potukevich brought down a Messerschmitt-109 with a self-loading rifle. Sergeant Melnikov, Lieutenant Stasin and Junior Lieutenant Bambal brought down one enemy plane each after the second or third shot with an ordinary rifle. Such examples are numerous.

Thorough instruction in rifle marksmanship.

Debris of a Nazi bomber.

Guerrilla Warfare to Increase, Says Kalinin

SOVIET guerrillas will step up the pace of their relentless war behind enemy lines, Mikhail Kalinin, Chairman of the Presidium of the Supreme Soviet of the U.S.S.R., predicted March 17 in an address made to a group of guerrillas who received decorations. He called guerrilla warfare the "most effective way for the people to take part in the war," and said that the guerrilla groups constitute a sort of Soviet government in territory supposedly controlled by the enemy.

Illustrating Kalinin's words came a TASS report that a Soviet guerrilla brigade operating near Leningrad now dominates an area of over 3,500 square miles, including parts of two German occupied districts. These guerrillas recently collected a caravan of foodstuffs which they sent into the beleaguered city. The guerrilla commander and commissar addressed the following letter to the newspaper *Pravda*:

"For eight months our brigade has been fighting the Germans far behind their front lines. As a result of our operations, Soviet rule is virtually restored in a territory over 120 kilometers in length and 80 kilometers in depth, into which the Germans are afraid to poke their noses. Neither punitive expeditions nor savage air raids on peaceful villages have helped the fascists. Our Soviet district administrations continue to exist behind the enemy lines, and guerrillas using our districts as bases are striking ever stronger blows at the enemies of our motherland. We send you greetings and assure you that the guerrillas will not lay down their arms while a single German remains on our soil."

Kalinin Speaks to Guerrillas

In his speech to the guerrillas Kalinin said: "I believe the guerrilla movement is one of the best sources of aid to the Red Army. It is valuable not only because the guerrillas disorganized the enemy rear, because they strike at enemy armament, manpower and communications, because they tire the enemy and keep him always wary behind the front, and because the guerrilla movement brings forth the most courageous and efficient of our peasants and urban workers. The greatest value of the guerrilla movement is that it gives an out-

In areas not suited to motorized vehicles, Guerrillas penetrate German lines and operate against their lines of communications.

An air-sledge ready to start with detachment of automatic riflemen.

Russians Fully Utilize Air-Sledges

A detachment alights from air-sledges in enemy rear.

Guerrillas receive instructions.

let to the hatred and the fighting abilities of the masses of collective farmers and city residents in their struggle against the German invaders.

"Even far behind enemy lines the guerrilla movement is consolidating the population and increasing its confidence that the capture of our territory is temporary. It directly organizes the masses against the fascist invaders. The guerrillas are a kind of representative Soviet government in the enemy rear. In their persons, the rural and urban citizens of temporarily occupied districts see the Soviet Government, and this strengthens their fighting spirit and increases their confidence that the Germans will be driven out.

"Guerrilla warfare is the most effective way for the people to take part in the war. I think that in the spring and summer the guerrilla movement will not diminish in scope. Judging from all indications, it will grow considerably, and the guerrillas will deal ever stronger blows at the enemy rear."

In the last few months the guerrillas have taken full advantage of the Russian winter. Usually wearing skis, they have swooped down on enemy supply columns, slaughtering guards and carrying off or destroying truckloads of military supplies. They have mined highways and railways, blown up bridges, cut telephone wires and collected important information which was transmitted to Red Army headquarters by radio. In February a ski detachment from the Karelo-Finnish Republic north of Leningrad, made a foray behind Finnish lines. Heavily armed with machine guns and automatic rifles, they captured four villages after defeating enemy garrisons. The Soviet guerrillas held meetings at which the Karelo-Finnish peasants learned for the first time of Red Army victories during the winter. The fascist had told the peasants that German troops occupied Leningrad and half of Moscow.

Price on Guerrillas' Heads

The Germans have offered a standing reward of a farm, horse, cow and 5,000 marks cash to any peasant who will betray the hiding place of a guerrilla detachment. Finding their rewards disdained, they have resorted to various ruses in their efforts to entrap the Soviet patriots. Recently guerrillas sighted a number of German trucks loaded with women advancing along a road on which enemy columns had frequently been ambushed. Curiously, many of the women were carrying rifles. A young girl who was cook for the guerrillas was sent out to reconnoiter. She reported that German soldiers had dressed themselves in women's skirts and jackets, seemingly either as a disguise or for protection against the cold. The guerrilla commander promptly led his detachment in an attack on the trucks. The Germans leapt out and ran for cover, repeatedly tripping over their flapping skirts and falling into snow drifts. The German detachment was wiped out.

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If a general shows confidence in his men but always insists on his orders being obeyed, the gain will be mutual.—*Sun Tzu.*

Employment of Cavalry

Use of Cavalry Divisions*

THE enthusiasm of numerous converts from horses and mules to motors has resulted in considerable propaganda in favor of complete elimination of animals from the modern field of combat. The views of such extremists should be studied with caution not through fear of drastic changes but because their contentions are *not* being borne out on the battlefield.

Mud, deep snow, swamps, jungles, forests, mountains, streams, boulder-strewn hills or fields and other types of terrain *stop* armored vehicles. Troops in otherwise favorable sectors may accomplish the same end within limits by constructing artificial or reinforcing natural obstacles and by the extensive use of antitank weapons and other devices.

In a majority of the above conditions cavalry can still function. Its value in Russia will not be an isolated case if this war continues many years on many fronts. The ability of the Russian forces to fight the winter war of 1941-1942 may be a major factor in the Axis defeat.

German cavalry was used effectively at Gomel in August and east of Bryansk in October. . . . We are unanimous in our desire for speed and power to the limit but when that limit may be defined by conditions of terrain and weather we must be guided by well considered studies and experience and not by wishful thinking.

When armored forces are operating under favorable conditions of weather and terrain, motorized units for close support are vital. If the period of operations is long, however, the change of seasons may relegate armored forces to a secondary or unimportant rôle. Likewise, if the depth of the theater of operations is great enough, the terrain features are bound to change with a similar effect on the use of armored forces.

If the rate of movement is great, say 100 miles per day, cavalry cannot provide close support for armored forces. Seldom, however, in close combat can armored forces average more than 30 miles per day. Cavalry can provide close support in such situations with less wear and tear than infantry on foot. Streams that are considerable obstacles to armored forces present little or no delay to cavalry. Furthermore, the relative silence with which cavalry operates and its ability to move at night are valuable characteristics. All in all, there are excellent grounds to substantiate the belief of many officers that cavalry still has a definite place under certain conditions of modern warfare although it has been definitely subordinated, if not eliminated, where motors can be used.

The greatest flexibility of thought and organization needs to be maintained in this respect as armored operations will not only vary unavoidedly, due to equipment available and terrain, but *must* be altered in technique, intentionally and continually, to achieve maximum results. If the war has taught us only one lesson, it should be that blind adherence to doctrine and convention must fall before imagination and ingenuity, assuming equally good judgment is applied in both cases.

*An excerpt from *Mobility and Motors*, by Lieutenant Colonel Arthur G. Trudeau, C. E. Instructor, Command and General Staff School. The article appeared in the April, 1942 issue of C. and G.S.S. *Military Review*.

Cavalry in Russia*

IT is the contention of our military experts as well as many of those abroad that the cavalry arm of the Russian army has been a big factor in fighting the war for Russia. It was this arm that the German army met at Tula, at Moscow and at Rostov and the strength of its blows left the Germans reeling and paved the way for the savagely counter-attacking Soviet army.

Last winter found the Germans knocking at the doors of Moscow; but the intense sub-zero Russian winter made motors virtually useless. Without vast sheds in which to heat their tanks, personnel carriers, and various other army vehicles, for starting in the sub-zero weather, the Germans found their blitzkrieg stalled. It was then that the Soviet cavalry came into its own for its horses did not "freeze up" as did the German mechanized army and it could maneuver over deep snow that stalled the German tanks and cars.

The power of an army depends to a great extent upon its maneuverability and its mobility, a mobility that is not confined to favorable conditions; such was the German army that invaded Russia last year. This according to military experts was the one flaw in the German war machine that rolled on so successfully until the Russian cold and counter-attacking Soviet cavalry brought it to a halt and ultimately drove it backward.

This week's war news again brings the Soviet cavalry to the fore. For Russia is now in the process of thawing out from what has been described as the

*Front page, Army and Navy Journal, May 2, 1942.

hardest winter in many years. The vast plains and fields are described as "spring swamps" which have bogged down other ground forces. The Soviet cavalry in an ever broadening scale are harassing the Germans at every turn by lightning raids on villages, communications, supply depots, etc.

According to the most reliable estimates—and it must be remembered that they are estimates—the Russians used more than 200,000 animals for cavalry purposes during the winter campaign. Another 800,000 animals were utilized for draft and pack purposes. These figures compare to: 50,000 cavalry animals possessed by the Germans, plus some 910,000 additional for draft and pack purposes; 325,000 draft and pack animals by the Japanese and 50,000 cavalry animals; and 25,000 animals for cavalry use by the United States plus 12,000 for draft and pack purposes.

However, if reports received in this country, (chiefly through correspondents for the Russians have not allowed any military observers to gain any comprehensive material on their campaigns or plans) the Soviet cavalry arm soon will be bolstered by powerful cavalry armies that have been training in the rear of the main lines. . . .

From the meager reports filtering from the Russian battlefront, the Russian cavalry is not having too great difficulty with the German tanks, armored cars, etc. When these vehicles attack, the cavalry scurries to terrain where the operation of automotive vehicles is out of question. All the crack Soviet cavalry personnel are taught how to handle hand grenades for blasting stalled armored cars and tanks, mortars for lobbing shells on unsuspecting Germans, and automatic arms to provide firepower in their lightning charges.

The achievements of the Russian cavalry speak pretty much for themselves. They have performed a job in hurtling the Germans from fixed positions, blasting stalled armored or mechanized units, or conducting forrays against behind-the-lines positions. They were particularly effective during the sub-zero weather when the German mechanized elements bogged down and during the next few weeks of Russian "thaw" should be just as troublesome for the Germans.

One phase of the use of cavalry to aid the hard-pressed Soviet army has been the guerrilla cavalrymen that have hammered at the Germans since the invasion of Russia began. . . .

Airborne Troops

TROOPS transported by air include parachutists and troops transported in gliders or transport airplanes.

The speed and range of modern aircraft permit landing of these troops over wide areas and their employment in surprise attacks.

These troops have the same mobility as infantry after they land. They will try to capture civilian and military vehicles to afford themselves rapid transportation.

Parachute troops are most vulnerable from the time they leave their transport plane until they are able to collect their weapons and form for action after landing.

Troops transported in gliders are most vulnerable from the time they are cut loose from the towing airplane to the time they are able to form for action.

Troops transported in airplanes are most vulnerable from the time the airplane is landing to the time they are able to form for action.

Equipment

Only light weapons are carried on the person of the descending parachutist, while heavier weapons are parachuted separately, usually in different colored chutes.

The weapons of air landing troops include all types of infantry weapons, light artillery and light tanks.

Plans for Defense and Offense

Plans must include provision for *immediate* attack of hostile landing forces.

Provision must be made to prevent the obtaining of vehicles by hostile troops which may land successfully.

It is particularly important that plans of fire and movement be *prepared* and *practiced* so that friendly troops do not fire into friendly troops.

Be prepared at all times to meet promptly, boldly and aggressively any attempted landing by troops transported by air. Practice defense measures, and *rehearse* prepared plans.

Insure a thoroughly reliable and timely warning service equipped with suitable means of signal communication.

Coördinate defense activities with those of the local civil defense agencies, and with the air force in that area.

Conceal naturally, or camouflage, weapons for sited defense.

Destroy the parachute troops while they are descending, or as soon as they land. Do not permit them to gather their heavy weapons and reorganize for ground operations.

Destroy troops in gliders and transports while they are landing. This requires *coördination* with the air force in that area, and the blocking with obstacles of the possible enemy landing sites.

Block their attempts to gain motor, and other, transportation; for whatever tactics troops transported by air employ, they must work quickly. Bold prompt action may be decisive.

As an indication of the importance of proper measures, troops transported by air have been landed in actual warfare at the rate of 3,000 fully-equipped troops per field per hour.

Impressions of THE AMERICAN ARMY

By Lieutenant Ricardo Bouroncle, Peruvian Army

EDITOR'S NOTE: *Qualified by his two year's experience as an officer attached to European Cavalry forces, his graduation from the United States Cavalry School, Fort Riley, Kansas, and his experience with his own army, Lieutenant Ricardo Bouroncle, now stationed with the 11th Cavalry, tells our readers how our army compares with others.*

TEN months ago I came to the United States of America from Europe where I had been sent by my government, the Republic of Peru, to study foreign armies. It had been an unusual experience and a very rich one, for I was attached to the French army for two years, during which time I had seen the war explode and the German army invade France. Moreover, I had an opportunity to study the armies of both France and Germany in action. With this background I came to the United States. In my first impressions of the American army I was amazed. With eyes of a fresh observer, undimmed by constant association with your army, I now propose to give you a short commentary on some of the outstanding characteristics of the American army, which are so different from those of other countries. I will also essay a brief comparison between the American army and those of Europe and my own country.

RICARDO BOURONCLE
1st Lieut., Peruvian Army

My experience with the American army includes three months with the 1st Cavalry Division, two months of which I spent with them on maneuvers in Louisiana, and then the basic course at the Cavalry School at Fort Riley. At present I am serving with the 11th Cavalry.

DISCIPLINE

After observing the contrast in discipline between the French and German armies, my first wish was to study the discipline of the American army. On this subject I feel I should offer preliminary explanations, since I now realize that some of my first impressions were misleading, due to my early lack of understanding of the psychological peculiarities of your people.

After having observed the weak discipline of the French Army, I naturally was strongly impressed by the iron discipline of the triumphant German army. This observation led me to the natural conclusion that strict discipline is indispensible to an army, and that an army's efficiency is in direct ratio to the rigidness of its discipline.

In the United States Army the discipline is very far from being rigid. My first and logical conclusion, therefore, was that your army is not a good one. But I soon found that I had carelessly disregarded another factor which I later perceived—the people, the absolute democracy of your country, each individual's highly developed sense of duty. After I had appreciated these fundamental differences in your people, I saw my mistake.

While discipline in your army exists, it is an inner discipline, a discipline not always apparent to a new observer. Your discipline differs from that of other armies because you are a different people. To understand your discipline, it is necessary to live a while with you. I stress this point because foreigners' first impressions were that your army lacked discipline.

MORALE

Each war problem in this country that I have attended (and particularly in the Louisiana maneuvers) I have observed evidence of high morale and a strong combative spirit among your soldiers—combative spirit translated into the ability to attack.

When your soldiers attack, they work with enthusiasm and exploit to a maximum their initiative and athletic qualities. They advance rapidly and resolutely, with confidence in themselves as individuals rather than in depending upon their leader. They advance resolutely because the order is to attack, which they understand because in all their American school games it is the offensive which is stressed and which succeeds. They advance rapidly because your people, both young and strong, have the ability to move and have the love of movement—the faster the better.

On the other hand in the defense your soldier usually looks for a good place to rest. His feeling for camouflage, for example, is often expressed by his ability to hide in a place of maximum comfort.

In other armies the defense is conducted far more realistically. This may partly be caused by the ever-

present threat of invasion among countries who are packed closely together. Threat always hovers just across the border. The people of those countries, and the soldiers, sense this and therefore take the defensive with more appreciative feeling. In some countries there still exists a frontier, where the people must defend themselves against predatory animals and still uncivilized natives—the forces of nature in the raw. This also tends to make a people appreciate the cold seriousness of defense. Though this condition once existed in America, the present generation knows nothing of it.

To sum up, I believe that the outstanding morale qualities of the American soldier are 1—great aptitude for the attack, 2—self-confidence, 3—initiative. Furthermore, I believe that your high command appreciates and is exploiting these qualities in evolving your doctrine of war.

Doctrine of War

My knowledge of your doctrine of war has been gained more through study of your books and military publications than through actual experience in your army. Through these means I have learned that your predominate goal is movement—rapid movement. It is speed—always speed in the attack—and the augmentation of this speed to the point where the factor of surprise results. You believe—and I agree—that this factor is all-important to victory.

In the defense you also believe in movement—in active defense. You believe in never sitting and waiting but always in searching, pursuing and destroying. Not for euphony have the names "antitank battalion" and "antitank squadron" been changed to "tank destroyer battalion" and "tank pursuit squadron."

This policy of rapid movement extends to your zone of the interior, to supply and evacuation. Your idea is to perform these functions at high speed. It extends also to production where your ideal is speed in the manufacturing of the materials of war. It is war against time —the principle of always exceeding the speed of the adversary.

Another of your goals seem to be flexibility of organization. This I have observed in the field, where I have seen units emerge with the greatest facility. You consider the situation, the terrain, the enemy. You form units according to these factors. This is in accord with the psychology of the American people who, in all their activities, are accustomed to solving problems rapidly and with originality. Furthermore, they are never satisfied with any solution, as are the people of other countries, but are continually searching to improve each method.

For example in France the people and the army acted upon the experience of the previous war. Their problems they thought would be solved for all time by the establishment of a system of fixed defenses, immensely strong. When this solution proved to be incorrect, they were lost. With the originality of the American people and their talent for improvising I believe this fatal error will never be committed here.

The Nazi army, on the other hand, believes in flexibility as its very essence and this flexibility it employs in its training. It is, however, a flexibility of preconceived plan more than of actual practice. When the preconceived plan blows up, as in Russia, the flexibility is lost because it is integrated with the plan and does not arise from the ability of the army to improvise and organize according to conditions. I believe that the American army will be able to maintain its flexibility of organization in the face of the unexpected, unlike the Nazi army.

Your ideal of flexibility of organization is, moreover, the most difficult to achieve. I believe that it can be carried out only by a command which possesses to the highest degree the qualities of competence and resourcefulness.

Small Units—Antitank

Among the small units I have seen employed in your maneuvers, one which impressed me most was the antitank. This unit has two outstanding characteristics; it is 1—an arm of grazing trajectory firing a projectile of great penetration, and 2—an arm of great mobility. The excellence of these characteristics of your antitank units give them maximum efficiency.

The 37-mm. gun is easy to operate, adaptable and simple to employ in the field. In its destructive action it acts in conjunction with the 75-mm. gun. Furthermore, there exists the possibility of some day evolving a gun with a calibre between the 37-mm. and the 75-mm. These armaments provide your antitank units with their first characteristic—grazing trajectory and a projectile of great penetration.

The second characteristic—great mobility—gives these units enormous possibilities. This characteristic is provided by your invention and development of the bantam, which has revolutionized the possibilities of these units, since they had previously been comparatively immobile and passive in their action.

The bantam has, in fact, resulted in incorporating in your antitank units the doctrine employed elsewhere—that of active, positive defense, in this case against tanks. These units can now overtake and overcome enemy tanks, loot them and pursue them to destruction instead of merely waiting for them. In effect they attack the attacker. To justify my admiration for these bantams, I relate the following incident which took place in the Louisiana maneuvers:

At midnight the 1st Cavalry Division was to cross the Red River, about 20 miles south of Bossier, with the aim of attacking and taking Shreveport, which lay in enemy territory. When most of the troops of the 1st Cavalry Division had crossed the river, word came that tanks of the 81st Reconnaissance Squadron of the 2nd Armored Division (enemy) were approaching to attack. The antitank squadron of the 1st Cavalry Division, commanded by Major Don E. Carleton, took

the mission of stopping the action of the enemy tanks.

The terrain in this country is covered with thick but low vegetation. It was sufficient to penalize the action of the tanks and cover the action of the bantams. As the tanks came by, clanking like boiler factories and thus revealing their positions, the bantams, quiet and secretive in their action, surrounded and overcame them one or two at a time.

The umpires signaled that one or two bantams were lost in each action. But the tanks were numerically outnumbered and the action was repeated several times until in four hours the thirteen tanks, four half-tracks and several enemy bantams—in short the entire 81st Reconnaissance Squadron—was destroyed or captured.

Reconnaissance Squadrons

The reconnaissance squadron has great application in modern warfare. It has, however, among others these problems to solve: 1—it must be mobile; 2—it must have sufficient fire-power to enable it under certain circumstances to culminate its reconnaissance mission in combat; 3—it must be sufficiently independent in organization and administration to be able to operate alone and independently of the higher echelon.

Before the introduction of mechanization the horse reconnaissance squadron solved these requirements to perfection. It was very mobile. It carried sufficient fire-power to fulfill its mission of contacting and scouting the enemy. Moreover horse cavalry can live off the land.

In your actual reconnaissance squadron of the cavalry division, horse, you solve the first two problems of mobility and fire power to perfection. In fact you have greatly increased the mobility and fire-power. But in your present reconnaissance squadron you have more than 300 vehicles—all dependent upon contact with higher echelon for gas and oil. The third problem is, therefore, not solved, for you have lost the former complete independence of the horse squadron, whose fuel was grass.

The purpose of the reconnaissance of scout car troops is executed mediocrity because the scout car has too many dependencies—an opinion which I believe is shared by many officers and chiefs of the United States Army. My experience with your army has given me the opportunity of observing the operation of the bantam troop of your reconnaissance squadron, however. Its operation I believe to be excellent, for the bantam provides essentially mobile transport. This troop is, in fact, a mobile or portéed infantry. It combines mobility, elasticity and fire-power. I know nothing of larger units of this type but, if they exist, I expect to hear big things from them. It must be obvious from what I have said that it is the bantam which most impresses me of all the vehicles of the American army. It is one magnificent vehicle! And how could anyone say it is not magnificent when he has seen it wrapped up in a tarpaulin and floated across a river like a boat?

And one thing more about the bantam. This little car is just the right vehicle to make surprise attacks in gassing the enemy. In maneuvers I have seen this action completed successfully several times.

Life with Your Army

These characteristics and facts about your army have impressed me most. In conclusion I would like to say something about Fort Riley and life with the American army.

At Fort Riley there were fourteen Latin-American officers who took the basic course. Because of the language our study there was rather difficult. But the assistance and painstaking coöperation of the instructors and our fellow students made it possible for us to complete the course satisfactorily.

Our three months' stay at Fort Riley gave us the opportunity not only of appreciating the American military teaching methods, the study of American armaments, conduct of small units, etc., but, also, above all, to live in close contact with American officers. Furthermore, we had the double opportunity of becoming acquainted with them both professionally and socially. This acquaintance has resulted in greater confidence in your officers and, consequently, in the American army.

Furthermore, the American officers had the opportunity to become better acquainted with us and to observe us in our studies and our work. Thus we hope they formed a high opinion of us and, consequently, of our military institutions. As a direct result of this mutual understanding and confidence, I believe that the coöperation between our countries in the present conflict will be facilitated.

This effect should be greatly strengthened by the fact that while we were attending the Cavalry School there were about one hundred other Latin-American officers in the other service schools of the United States.

I believe I am speaking for all my fellow Latin-American Officers when I say we are happy and grateful to have had this opportunity to study and observe the methods of instruction in the service schools of the United States. We sincerely hope that in the future this interchange of officers, with its resultant improvement in mutual understanding, will be greatly increased.

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The great questions of the day are not decided by speeches and majority votes, but by blood and iron. . . .
***(In a declaration to the Prussian house of delegates*, 1862.)**
—Bismarck.

BRAZIL ARMS

To meet "the heavy new duty of the army in the maintenance of public order and national defense," President Getulio Vargas

signed a decree April 8th boosting Brazil's army from fewer than 100,000 to 1,200,000. Besides, with trained reserves, Brazil —which broke relations with the Axis last January—called for voluntary enlistments under the presidential decree.

Editorial Comment

NEW EDITOR

THIS issue of *The Cavalry Journal* represents the final one to appear under current editorship. Opportunity is here taken, therefore, to express deep appreciation to our contributors who have rendered such fine, sympathetic understanding and assistance; and to our readers, their kind indulgence of our efforts.

Deserved commendation is given to our staff: To Miss Christine Harbour, our capable office assistant, who for the past five years has given unstinted support and efficient, courteous and administrative effort in promoting the interests of The United States Cavalry Association; To Master Sergeant Amand J. Thissen, DEML, for his loyal, energetic, and painstaking handling of varied and sometimes exasperating duties connected with circulation during the past three years; To Garrett and Massie, Richmond, Virginia, for their patient cooperation and excellence in printing achievement.

Following the publication of this issue, Colonel Edwin Miles Sumner, Cavalry, assigned to the Requirements Division, Headquarters, Army Ground Forces, will succeed to the editorial chair of *The Cavalry Journal* and will serve as Secretary-Treasurer of The U. S. Cavalry Association.

Colonel Sumner is well known to all cavalrymen. Until recently he was Personnel Officer in the Office, Chief of Cavalry, and since has served in the Military Personnel Division of the Services of Supply. His diverse and balanced military background, marked by foreign service and considerable periods of administrative, command, and school duty, lend seasoned judgment to the selection and evaluation of material intended for presentation to readers of *The Cavalry Journal*.

The editorial pencil is hereby transferred to Colonel Sumner with best wishes and the conviction that under his guidance the aims and purpose of The Cavalry Association will be fostered.

General Herr Honored

On May 15th Major General John K. Herr, U.S.A. Retired—President of the U. S. Cavalry Association—was conferred an honorary degree of Doctor of Science by Lafayette College, Easton, Pennsylvania.

General Herr attended Lafayette College prior to entering the U. S. Military Academy.

The U. S. Cavalry Association

There seems to have been a slight confusion among several of our younger officers regarding Cavalry Association membership and liabilities thereto. This probably is due to the substance of Article IV, Section 4, of the Constitution of the U. S. Cavalry Association, which appears on our "Enrollment Blank" as follows:

> "Any member may withdraw from the Association at the end of any current year by tendering his resignation . . . but such withdrawal or lapse shall not operate to relieve such members from liabilities to, or as a member of the Association, incurred prior thereto."

Membership in the Association automatically includes subscription to The CAVALRY JOURNAL. According to the constitution, *active* membership (which includes the privilege of voting for election of officers at the annual meeting) is restricted to General officers and cavalry officers. This, in fact, is now largely a matter of form, the number of officers present at the meetings rarely exceeds a hundred, so the proxies are necessary to constitute a quorum. Associate membership has similarly been extended to all officers and enlisted men regardless of arm or service and to civilians.

The principal activities of the Association at present, other than the JOURNAL, are limited to the operation of a Book Department to help finance the overhead requirements and to promote certain "missionary" projects as may be desirable, for the benefit of cavalry and the service in general. All of the membership net dues is consumed in the publication of The CAVALRY JOURNAL; and, in turn, the JOURNAL obviously is dependent on the collection of dues.

The quotation of the constitution on the application card, therefore, is for our assistance in the collection of dues (or subscription fee), for in the past, some accounts were allowed to run for several years before being dropped as a dead loss. In other words, a "paid-up" member may resign at any time that he so desires and the necessary adjustment of his account can be made; for as long as the JOURNAL is mailed to him, the cost is approximately the same as the dues owed.

The CAVALRY JOURNAL is published in the same general manner as any commercial magazine, but without benefit of paid advertising. All that we expect—according to the constitution—is that members pay their dues ($3.00 annually) in advance and keep us informed as to correct rank and address so that The CAVALRY JOURNAL can reach its proper destination without delay.

We believe that The CAVALRY JOURNAL is worth its cost to our members, otherwise, it would be discontinued! The JOURNAL is a non-profit, self-supporting activity. The greater the membership (or circulation)

the better the JOURNAL. It seems only fair and right therefore that all cavalrymen should share the financial obligation of the ever-increasing cost of production of the JOURNAL and assist us by promptly paying their dues without the necessary added cost of repeated billing.

Side-Saddle and Sam Browne Belt

The side-saddle and the Sam Browne belt can be discussed jointly, as both developments are the result of infirmities—and are just about as useful.

In Europe, several hundred years ago, riding sidewise by women with feet enveloped in a voluminous skirt, was popularized solely because a French princess set the fashion to conceal her deformed spine. In England the side-saddle as well as many other styles and customs, was first introduced by Anne, daughter of the King of Bohemia, first queen of Richard II in 1388. Again, during the reign of Queen Elizabeth, the side-saddle was further popularized because a member of her royal household had a withered right limb, which was not noticeable when she rode sidewise wearing a full skirt. Thus, we find that the side-saddle was originated to camouflage infirmities rather than developed either to benefit women or to improve horsemanship.

The Sam Browne Belt, officially known as the *Officers Belt M-1921,* derives its name from General Sir Samuel Browne, an English officer who served in the early campaigns in India. Having lost an arm in battle, he devised the belt so that he might carry his saber despite his physical handicap. In Europe during World War I the Sam Browne Belt was generally accepted as an "officer's badge." Since that time, however, with no restriction on its use by the uniformed civilian miscellany, and now with its use or a cloth belt optional by officers, the original purpose of the Sam Browne Belt for us has become nullified.

It would seem, therefore, that the utilization of all leather at this time should be limited specifically to those necessary purposes that will materially further our war effort!

His Satanic Majesty

Adolf Schicklgruber Hitler in *Mein Kampf* wrote:

"At the bottom of their hearts the great masses of the people are more likely to be poisoned than to be consciously and deliberately bad. In the primitive simplicity of their minds they are more easily victimized by a large than by a small lie, since they sometimes tell petty lies themselves but would be ashamed to tell big ones.

"An untruth of that sort would never come into their heads, and they cannot believe that others would indulge in so vast an impudence as gross distortion. Even after being enlightened, they will long continue to doubt and waver, and will still believe there must be some truth behind it somewhere. For this reason some part of even the boldest lie is sure to stick—a fact which all the great liars and liars' societies in this world know only too well, and make base use of."

—Utterances of Hitler in 1933-4, as vouched for by Hermann Rauschning:

Hitler's Plan: "I have no scruples, and I will use whatever weapon I require. . . . We shall undermine the physical health of our enemies, as we shall break down their moral resistence."

War: "War is but cunning, deception, delusion, attack and surprise."

Chivalry: "Generals, in spite of the lessons of the war, want to behave like chivalrous knights. I have no use for knights."

German Empire: "Germany will be Germany only when it is Europe as well. Without power over Europe we must perish."

Mexico: "If we had that country we could solve all our problems. With the treasure of Mexican soil Germany could be rich and great."

Education: "Universal education is the most corroding and disintegrating poison. . . . There must be only one possible education for each class."

Christianity: "Fascists will not prevent me from tearing up Christianity root and branch and annihilating it in Germany. . . . One is either a German or a Christian: you cannot be both."

The U.S.A.: "This is the last disgusting death-rattle of a corrupt and outworn system which is a blot on the history of this country. . . . It is a mistake to assume that it was a danger to us in the last war. Compared with the British and the French, the Americans behaved like clumsy boys. The American is no soldier."

Death to Spies!

In recent press dispatches there have appeared accounts of the shooting and hanging of spies by the Axis powers; also, accounts of spies in America who have been found guilty and sentenced to light jail terms.

It is probable that a lenient policy in dealing with spies and saboteurs will encourage their activities. It is difficult, therefore, for our "rank and file" to understand why we should feed and protect these enemy termites, while our own troops are being exposed to sanguinary enemy action based on the information of their spies. Let us remember that *we are at war!* We legally should give *death to enemy spies.* Why not?

The following excerpt from Page 507, *Military Law and Defense Legislation,* by Schiller, is quoted:

JURISDICTION

(Digest of Opinion of the Judge Advocate General, Apr. 6, 1918.)

In time of war a spy, whether he is in the military service or not, and whether his offense is committed within or without a fort or camp or a 5-mile zone, is triable before a general court-martial. The war power

vested in Congress by the Constitution incidentally authorizes Congress to create military tribunals with the customary jurisdiction. In construing the Constitution it is possible and necessary to appeal to international law. In time of war, by international and military law, spies are within the jurisdiction of military tribunals. A. W. 12 provides that "General courts-martial shall have power to try . . . any other person who by the law of war is subject to trial by military tribunals." A. W. 82 provides that "any person who in time of war shall be found lurking or acting as a spy in or about any of the fortifications, posts, quarters, or encampments of any of the armies of the United States or elsewhere shall be tried by a general court-martial or by a military commission, and *shall, on conviction thereof, suffer death.*" The context and history of A. W. 12 and 82 show that the words "or elsewhere" do not restrict the jurisdiction to the immediate neighborhood of fortifications, posts, quarters, or encampments, but in modern conditions cover the entire area of the United States.

Ideal Leadership

"In our military history three men stand out as ideal types of leaders—George Washington, Winfield Scott, and Robert E. Lee. In analyzing the character of these men we find almost identical qualities. Considering the military side of each we find, first of all, that they were endowed with a sense of public duty that impelled them to sacrifice every personal consideration in behalf of their respective causes. They had everything to lose and practically nothing to gain by their sacrifices. For their day, each was a man of the highest professional attainments; each was a man of unquestionable moral and physical courage. They were intensely human; they were stern taskmasters, exacting the utmost of their followers; but not one of the three ever exacted more of his men than he did of himself.

Considering the personal or non-military side of their characters we find them to be men of the highest sense of honesty, justice and decency. They possessed many other attractive qualities calculated to distinguish them and aid them in their leadership; but the qualities just considered were those that compelled the respect, the confidence, the admiration, and loyalty of their followers."—*Officers' Manual by Moss.*

Change of Address

The publication of Special Orders is now Restricted. Orders showing change of station of our members, therefore, are no longer available to us. For this reason, it is requested that changes of address (or A.P.O.) and title be furnished us without delay upon any change of address. The CAVALRY JOURNAL will reach you wherever the United States mail is carried. Use the *change of address card* provided as an insert with this issue.

Far-East Time Variations

Japan is 14 hours ahead of Washington Standard Time, Hawaii, 5½ hours behind it. The international date-line runs between Midway and Wake islands, making Midway and all points west of it later than Eastern Standard Time, while Wake and all points west are ahead of Eastern Standard Time.

This table gives the time in the principal points involved in the war when it is noon in Washington, Eastern Standard Time. (1:00 PM Eastern War Time.)

Samoa	6:00 A.M. Same Day	Moscow	8:00 P.M. Same Day
Hawaii	6:30 A.M. Same Day	Bombay	10:30 P.M. Same Day
Berlin	7:00 P.M. Same Day	Dutch East Indies	12:30 A.M. Next Day
Singapore...	Midnight Same Day		
Manila	1:00 A.M. Next Day	Tokyo	2:00 A.M. Next Day
Sydney	3:00 A.M. Next Day	Wellington, New Zealand	4:30 A.M. Next Day
London	6:00 P.M. Same Day		

American Soldier of Today Taller, Heavier Than in 1917

An increase in both weight and stature distinguish the modern American soldier from the average citizen-soldier who entered the Army in 1917, was revealed by the War Department following a study of medical records.

In 1917 the average man entering the Army was 67.49 inches in height, but the records show the present soldier is 68.19 inches tall. This constitutes an increase of .7 of an inch.

The average weight of the 1917 soldier was 141.5 pounds, whereas the man entering the Army today tips the scales at an average of 151.3 pounds, an increase of 9.8 pounds.

Erratum

In the March-April issue of The CAVALRY JOURNAL, bottom of Page 20, the Japanese word Shosha (Major) should be Shosa.

Mechanized Kitchens

Too much kitchen paraphernalia for a bivouac or even a temporary camp. A compact kitchen truck with the necessary built-in fixtures — all ready to move at a moment's notice — obviously would be preferable under all weather conditions and climate.

Wanted!

—a copy of The Cavalry Journal, July, 1923!

Recently, we have had several requests for copies of our July, 1923, issue, but regrettably, other than our bound file copy, none is available to us.

It will be appreciated if anyone having a spare copy will mail it to The Editor, The CAVALRY JOURNAL, 1719 K Street, N.W., Washington, D. C. Postage plus 50c will be refunded promptly!

Wanted

Major General Innis P. Swift, Fort Bliss, Texas, desires to purchase a copy of *Cavalry Outpost Duties*, by F. de Brack, published in 1893 and now out of print. Anyone having a copy for sale is requested to communicate direct with General Swift.

Army Initiates Program to Conserve Gasoline and Rubber

The War Department has announced that army units and posts have been instructed to operate motor vehicles on a minimum schedule necessary for the training of troops and the administration of installations in order to conserve rubber and gasoline.

All commanders have been instructed to take steps to reduce the operation of motor vehicles, conserve the expenditure of gasoline, and conserve rubber. Included in measures to conserve the expenditure of gasoline and consequent conservation of rubber are:

(a) Pooling the use of motor transportation.
(b) *Use of animal-drawn vehicles where available or obtainable.*
(c) Elimination of all unnecessary trips.
(d) Strict accountability for loading to the maximum usable pay-load.
(e) Maintenance of power plants properly tuned up, brakes properly adjusted, wheels properly aligned and tires, properly inflated.
(f) Prevention of idling motors while waiting for loads or passengers.
(g) Enforcement of the principle that army vehicles will not be used to transport military personnel to or from homes.

"The Locators"

Army wives by the thousands have settled down in towns, hamlets and cities all over the United States while their officer husbands serve overseas. Families from Hawaii, *the Philippines* and the Canal Zone have returned to the States to live and wait for the return of their menfolk.

At Fort Leavenworth, where Army officer wives are more fortunate in that their husbands have not yet left the country, Mrs. Charles R. Bathurst, wife of Lieutenant Colonel Charles R. Bathurst, an instructor at the Command and General Staff School, conceived the idea of keeping in touch with officer wives. She, and a number of other wives, started a volunteer group known as The Locators. This organization set up a filing system to keep tab on the addresses of all army officer wives. In due time the location of any officer's wife will be available to her friends. No lists will be released for commercial use.

Recently organized, The Locators already have an extensive list of addresses and have sent out mailing pieces urging all army officer wives to register their addresses with the organization. Inquiries for the addresses of wives are sent in with a self-addressed postal card and the information, if on file, is returned.

The Fort Leavenworth women are donating their time to the organization and the Officers' Club on the post has furnished free office space from which the organization operates.

Coincidence

Major General George S. Patton, Jr. commands the army's Desert Training Center—"Little Libya," where mechanized units are participating experimentally in maneuvers.

A noteworthy coincidence is the fact that General Patton's grandfather on horseback campaigned in the *Indian Wars* near the very spot where the base camp is located. General Patton, himself formerly a cavalryman, therefore, is thoroughly familiar with the extensive desert training area which extends into three states —and is doubtless aware that the *airplane-tank-horse* combination, under unified command and aggressive leadership, as demonstrated by Russia, is potentially the most redoubtable weapon in modern armies today!

Censorship

Everyone should be thoroughly cognizant of the provisions of Section III, War Department Circular No. 113, April 17, 1942—"Policy governing release of military information."

Notice

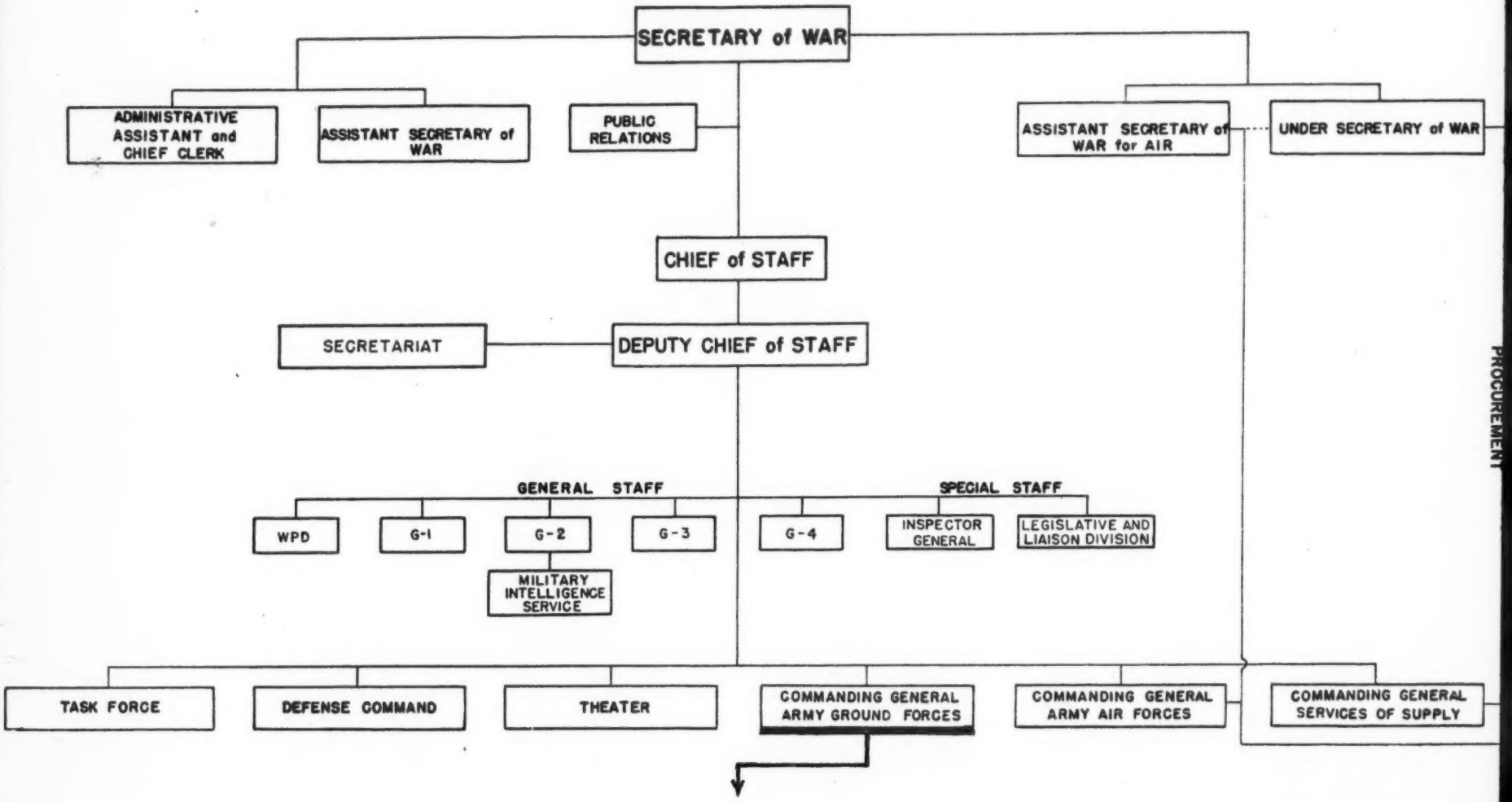
We recently have had several individual requests for "restricted" manuals. The correct procedure for securing *any* "restricted" documents is to make application through your commanding officer, and then only *if duty assignment is of such a character that it is necessary in the line of duty*. Application is then made by the commanding officer to the Publications Section of the Adjutant General's Office.

Save! !

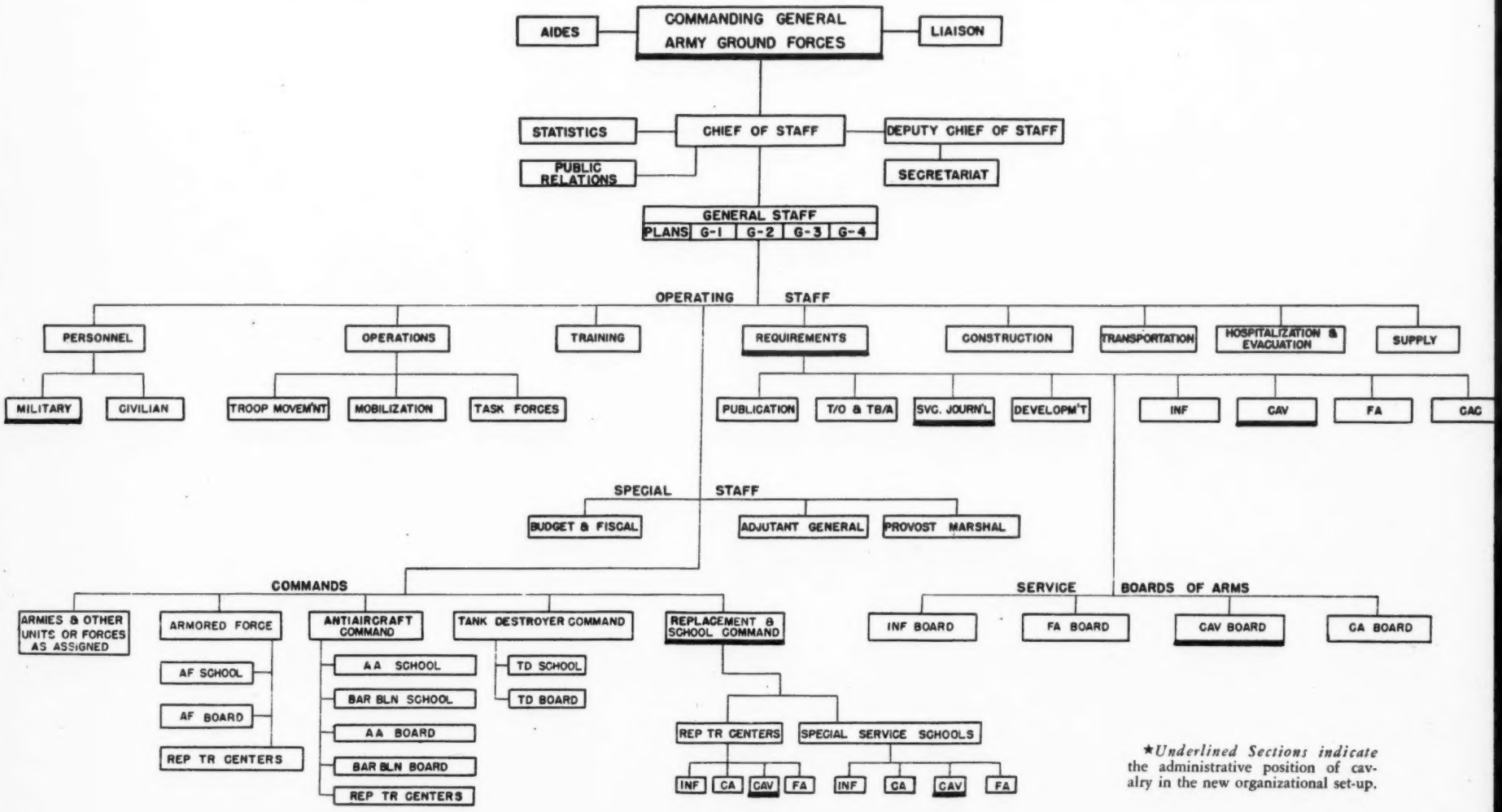
In previous issues we repeatedly have appealed to everyone to "Save before we have to—"

Well, now we *have to*—for *VICTORY!*

ORGANIZATION OF THE ARMY



ORGANIZATION OF THE GROUND FORCES*



★*Underlined Sections indicate* the administrative position of cavalry in the new organizational set-up.

General Hawkins' Notes

THERE is a great deal that I would like to write in these Notes for The Cavalry Journal that the Censor would not allow. And rightly so. Questions of organization, equipment and tactics, for the purpose of fighting our enemies in this war, cannot now be published or openly discussed. Some comments, however, can be made on items that have already been published. It is well known that I believe firmly in the value of cavalry as a general proposition; but neither I nor anyone else should now publish any ideas as to when, where or how cavalry may be used in this war. The fact that we still have cavalry should convince any anxious cavalrymen that the War Department believes that we may have to use cavalry somewhere at sometime. Cavalrymen should rest on that fact!

In the March-April, 1942, issue of The Cavalry Journal an article from Australia appears entitled "They Ride Again." Apparently, they are going to have a considerable force of cavalry fighting in Australia if the enemy invades that land. The peculiar thing about Australian mounted troops is that they call themselves "mounted infantry." This was noted also in the Palestine Campaign in 1917. The Australian "mounted infantry" of that campaign was practically the same as our cavalry. That is to say, it was trained to fight both mounted and dismounted, and actually did so. That is the kind of cavalry we have always had. Why the Australians call it "mounted infantry" is hard to understand. Perhaps it is because the European cavalry was organized and trained to fight only mounted except for rare occasions when dismounted action was resorted to as an expedient. The European cavalry, however, had created a lot of "dragoons" by the time that the World War had commenced in 1914, and they did a great deal of dismounted fighting; but they were not well equipped or trained for it. European soldiers often called our cavalry "mounted infantry" because it *was* well armed and trained for dismounted action.

It has always seemed to us that the term "mounted infantry" was a misnomer, since there is no reason why horsemen should not be able to fight mounted or dismounted equally well. At any rate, we had the right to call such a force "cavalry" if we chose to do so. There would be no sense in having cavalry able to fight only mounted, and another mounted force able to fight only dismounted.

Another strange thing about this article, "They Ride Again," is that, in discussing the large number of horses available in Australia, the writer says that the horses are not up to standard for cavalry horses, but are ideal for mounted infantry. He says that they are not heavy enough for cavalry. It would certainly appear to us that any horses light enough to be saddle horses and heavy and strong enough to be good for mounted infantry should be suitable for the kind of cavalry we believe in.

The article also states that "in the event of invasion, a new form of guerrilla warfare with mounted troops is almost certain to develop." What he means is that the cavalry will engage in a type of warfare similar to guerrilla warfare. Guerrilla warfare, as understood up to this war, was a form of warfare conducted by partisans or civilian combatants who were usually without the uniforms of their country's army and were subject to hanging or execution by firing squads of the enemy if captured. The cavalry of an army, in proper uniform, could engage in very similar operations without being considered as beyond the protection of International Law if any were captured. We quite agree that modern cavalry operations may take on such a guerrilla form in a very useful way.

This goes again to emphasize what I have written before to the effect that in our cavalry the leaders of small units, from the squadron down, must be trained to a high state of initiative. I do not mean to say that cavalry will be confined exclusively to some form of guerrilla warfare, but in some countries and under some conditions this would be most effective.

In any case, we have many horses in America, and they should be utilized in our total war effort.

★ ★

FIGHT!

A nation is not worthy to be saved if, in the hour of its fate, it will not gather up all its jewels of manhood and life, and go into the conflict, however bloody and doubtful, resolved on measureless ruin or complete success.—*Garfield.*

Air Combat Power

*By F. O. Cooke**

FROM Hannibal's waddling elephants to Hitler's screaming Stukas, military history proves repeatedly that a powerful new offensive weapon is the surest short-cut to victory. In the long-engine long-range or heavy bomber, America possesses the strongest single striking force on world battlefronts today.

Equipped with the turbo-super-charger, the latest Flying Fortresses and Liberators operate at elevations over 35,000 feet, with a range of more than 3,000 miles and a bomb load of 4 tons, at 300 m.p.h. The Norden bomb sight enables them to blast ships, harbors, fortifications, industrial centers and troop concentrations in broad daylight, unseen and unheard at their terrific height, a thousand miles inside enemy territory.

Daylight bombing of the Axis naval base at Brest had immobilized for several months the German warships *Gneisenau, Scharnhorst,* and *Prinz Eugen* until soupy weather grounded the long rangers and gave the imprisoned ships a chance to escape. The Fortress was first used here in July, 1941, from altitudes so high that in midsummer the planes were covered with frost, and first warning of the attack was the scream of the bombs. Used against German or Japanese industrial centers, it would shatter both production and morale.

When the prototype of the Fortress, the Boeing 299, was first planned in 1932, and flown in 1935, most aeronautic experts scoffed at it as a fantastic waste of material. But in two years of war, American foresight and air engineering have been fully vindicated in their buildup of the heavy bomber. Consolidated's Catalinas and Coronados are the mainstay of the Atlantic patrol It was a Catalina which spotted the *Bismarck* and led the British fleet in for the kill. A Lockheed Hudson, converted for patrol bombing, recorded the first capture of a submarine by an airplane.

Fortresses vs. Japs

Even more significant is the showing of the Flying Fortresses against the Japanese. The few heavy bombers available in the battle of the Pacific have taken almost a 10 to 1 toll of Jap fighter planes sent against them. They have bombed Bangkok, Jaluit, and Malaya, and blasted Jap fleet concentrations. The hard-pressed Dutch, asked what was most needed to save the Indies, answered, "Send us four-engine bombers. Send us destroyers and submarines if you can, but first of all, heavy bombers."

Even the early model B-17's, which European experts scornfully dubbed "Flying Targets," proved highly effective and not so vulnerable in the battles of Britain and Libya, where a lone Flying Fortress beat off nine ME 109's and returned safely home. Improvements based on observation of their performance on these fronts have caused five major changes in this model during the past five years, rendering old assembly lines and production units obsolete, and sharply limiting the supply of these complex weapons.

If American aviation facilities were stepped up today to the claims made on paper for 1943, a United victory

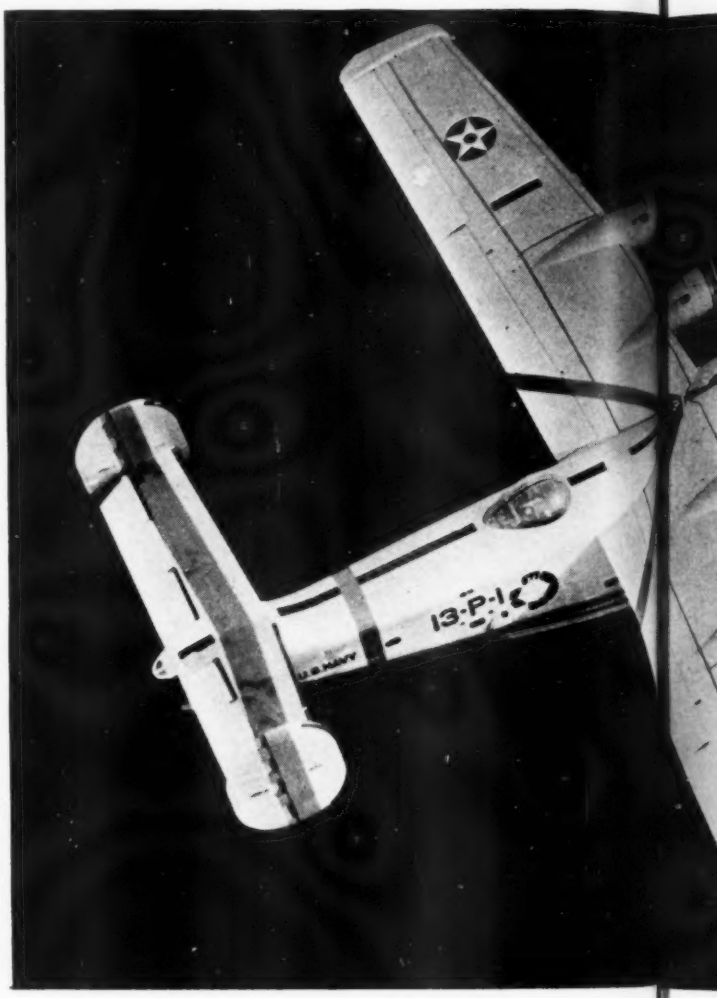
*Courtesy *The Leatherneck* Magazine.

would be certain within the year. For flocks of these devastating death-birds, operating from bases in Greenland, Iceland or Ulster, flying high above ack-ack and fighter patrols, could lay waste in sustained daylight bombing the entire German industrial and communications nerve centers, coming and going unscathed, since the Axis has not yet developed pursuit planes which can operate successfully in the substratosphere. In the word of Winston Churchill: "Even if the Nazi legions stood triumphant on the Black Sea . . . even if Hitler were at the gates of India, it would profit him nothing if at the same time the entire economic and scientific apparatus of German war power lay shattered and pulverized at home."

But as the British have found, to be decisively effective not twenty or thirty (the number they had on hand late in 1941), or even the 2,000 Flying Fortresses a British Air Marshal once mentioned as the amount needed "to clean up the job in short order," would be enough. "Strategic" bombing is a long-time policy, to be maintained over many months and across endless miles of enemy territory. Great fleets of thousands of bombers are needed on all fronts, and needed now, before some method of counteracting their deadly fire can be devised.

The long-range bomber today doubles in brass for both land and sea artillery. A full bomb-load discharged at 10,000 feet equals the effect of a battery of howitzers at point blank range. Heavy bombers, unopposed, can outmaneuver heavy cruisers and battleships, although these planes are not at their best against ships at sea. Britain has found them a more than satisfactory substitute for French coastal artillery and the silenced guns of the Maginot Line. At this point in the history of strategy, the heavy bomber is supreme on land and sea.

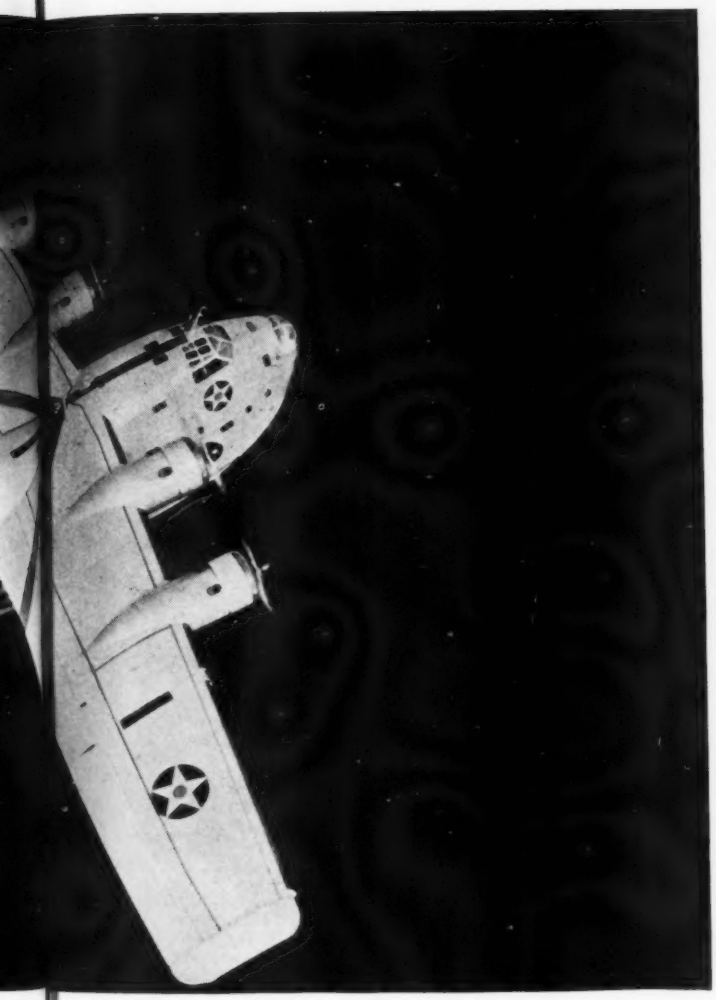
But in the first months of 1942 no power in the world had sufficient long-rangers to launch an all-out offensive. The war has clearly developed into a production race. The late Sir Frederick Banting predicted: "Whichever power gets up to 40,000 feet first and can stay there longest with the heaviest guns (and the greatest number of planes) will win the war." In other words, the most efficient production line will win.



The Coronado by Consolidated is rated one of the most powerful patrol bombers in the world. Because patrol bombers must travel long distances

Heavy bombers are not easy to produce in quantities sufficient for more than mere guerrilla attacks on enemy bases. Each one costs around $300,000. There are 54 stations on Consolidated's 3,000-foot assembly line, with a six-hour stop at each station.

"The Devastator," carrier based Douglas dive-bomber of the Navy. This ship is also used by the Army under the designation A-24.



unescorted, the Coronado has heavily armed power turrets in nose, tail and sides. Its range is 5,200 miles with seven tons of bombs.

Acres of strategically located and well protected floor space, tons of specially designed machines, stockpiles of raw materials (U. S. weakest link at present), and hundreds of thousands of skilled workers are needed. The number of drawings involved is about 17,000, the total number of parts almost 40,000, each small piece requiring meticulous design and tooling.

Not all nations can meet these exacting requirements. Japan lacks floorspace, raw materials, and skilled labor. Her system of farming out the manufacturing of machine parts to small independent companies makes assembly and tolerance of parts extremely difficult. Proof of her troubles is her inabilty to duplicate the giant Douglas DC-4, although a model plane was sold to her to break down for analysis, and Douglas even licensed the blue prints over to her. Japanese workers could not reproduce it.

Japs Lack Heavy Bombers

Forced by the ABCD economic blockade to strike before she was fully ready, Japan's failure to show much air strength in Luzon after the fall of Manila means that she hasn't enough planes to fight all-out on more than one front. If she could have followed up the assault on Pearl Harbor with hourly bombings by fleets of her Mitsubishi 92's, the war in the Pacific might have been over as soon as it started. But Japan just doesn't have the planes.

Germany too was unprepared for long-range bombing. Field Marshall Hermann Goering may have begun with a quixotic vision of a Luftwaffe of bemedalled knights of the air driving the muddled British from the skies. But over-boldened by her diplomatic success at Munich, Germany pushed herself into large-scale warfare two years before her air force was mechanically strong enough to blitz Britain into blightly. She could muster only enough strength for one blow at a time, as at Coventry. Unable to follow through with sustained blitz bombings she watched the RAF prove too tough in manpower and machine quality, and gain rapidly in quantity, thanks to American aid and increased production at home.

Then his yellow ally's rabbit-punch at Pearl Harbor convinced Hitler that the age of chivalry was over. Not Aryan racial or scientific superiority would win in the

Old Faithful of the Atlantic Patrol is the Consolidated "Catalina" patrol bomber. It was this type of ship that shadowed the ill-fated *Bismarck* and led British surface ships in for the kill. She has a range of 4,000 miles and the side blisters indicate she is well able to take care of herself.

air, but stark machine strength, firepower, and force of mechanized numbers. Heavy bombers, not speedy pursuit ships, were winning the world's air battles. This is doubtless the cause of his recent coolness toward Goering and the current lull in Nazi air activities over Europe. Hitler's engineers are working overtime to overcome their initial misplacement of emphasis on individual fighter planes and dive bombers. (Four prominent Nazi airmen recently died in crashes on experimental flights.)

Biggest dark horse in the field of aviation is Russia, whose air leaders planned and built giant bombers years before the U. S. Like so many USSR innovations—parachute troops, gliders, air-borne cannon—these were long regarded as Buck Rogers stunts until practical use by the Nazis made them all too real.

Exact status of the Red air force is strictly secret. There can be little doubt that even as far back as Lindbergh's visit in the early 30's, they showed only second-rate stuff to visiting firemen. Americans, they said, talk too much. They kept up the same pretense in the war against Finland, causing Hitler to underestimate their true strength.

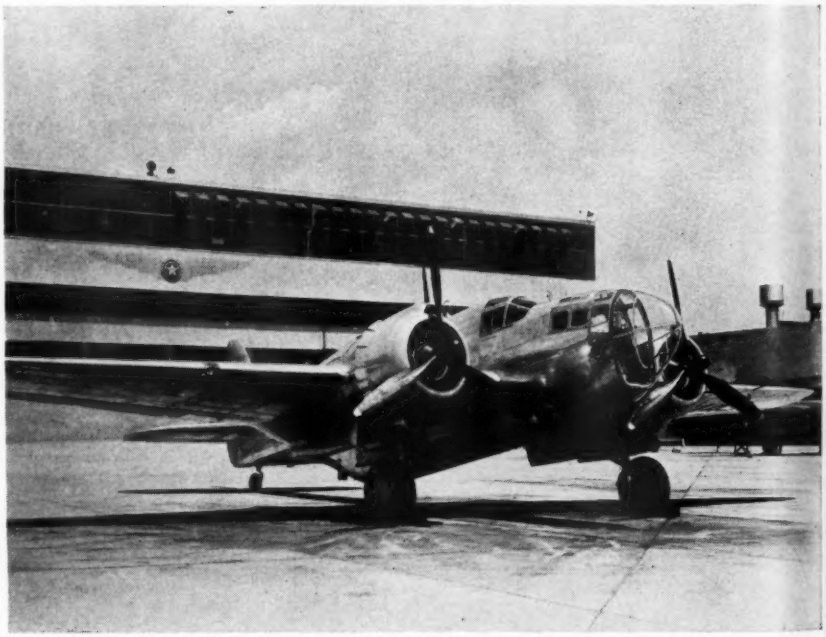
But the USSR air force must be plenty good to have stopped even a tired Luftwaffe cold enough to permit the recent Russian land victories. The Soviets have long had the highest percentage of heavy bombers; more than one-fifth of total fighting aircraft. Their strategy demands 3,500 combat planes for every nine corps of troops.

Although they have shown few long-range bombers thus far, the Soviets doubtless have many more surprises up their sleeves like the "flying tanks" which mowed down German mechanized units before Moscow, and were so heavily armored that only direct cannon hits could damage them. Other Russian rarebits may be a six-engine long-ranger, and a transport biplane carrying troops between the wings.

Of all the warring nations the USSR alone has the resources in her immense industrial plants back of the Urals, to challenge America's production supremacy.

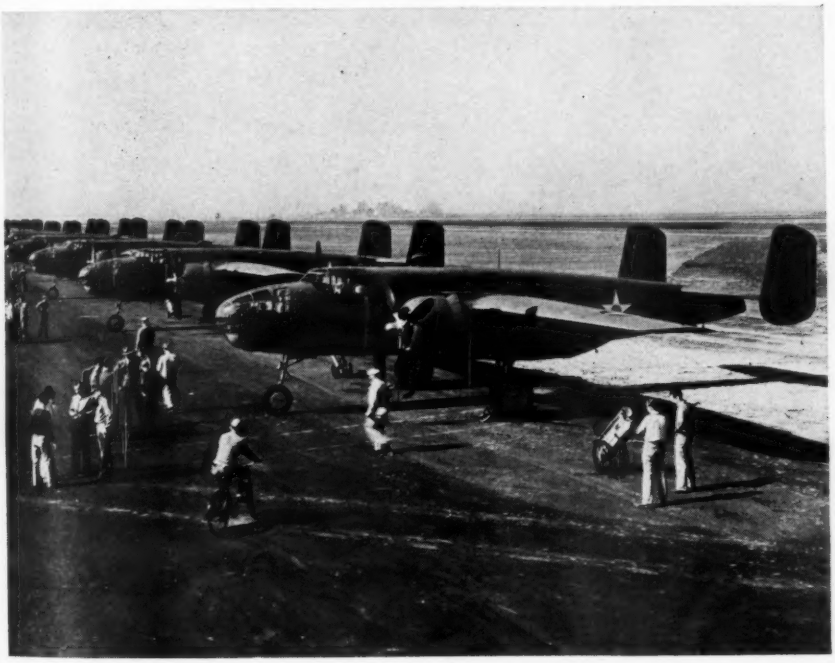
Britain's entry in the long-range

Top—Douglas two-motor attack bomber and *below* the famous Martin Baltimore.



Below—North American's AB-25 medium bomber rates higher than most European planes of its class.

Above—Famous Vultee Vengeance dive bomber of the Navy and *below*—North American medium bombers on the line.



Below—Dauntless dive bomber of the Marine Corps is one of the most feared planes on the battlefronts.

sweep-stakes is as recent as last September, since RAF authorities even late in 1940 derided the usefulness of the giant bomber. Then the fall of France and the Lowlands took out of Allied hands the French bases England had planned on using, putting German planes at England's door, and German targets six times farther away from English bases than the British centers were from the new Nazi points of attack.

Thus to bomb Germany and Italy, and carry the crucial Libyan-Mediterranean campaign through successfully, planes were demanded having great cruising range and bombing power. The heavy bomber again had to take the place of both artillery and battleship.

U. S. Aid Essential

Britain now puts out three bombers of this type: the Handley-Page Halifax, the Short Stirling, and the Avro Manchester. These have already made successful raids on Occupied France and Nazi troops in Libya. But Britain needs far more of them before she can carry the war to German centers and repay the Nazis for the razing of Coventry and London's "rain of fire." Her limited industrial potential makes U. S. aid essential if this is to be more than a paper victory. As soon as she begins putting out a new model plane as was the case with the Defiants which wreaked such havoc with Hitler's dive bombers at Dunkirk, the enemy seeks out the production unit and bombs it into uselessness. Like Australia and the Dutch Indies, England looks to America for the planes which will turn the tide of victory.

Axis engineers are planning feverishly to overcome our present advantage, by designing interceptors with a ceiling equal to that of the heavy bombers. For just as air power is proving the decisive factor in the war, so altitude, more than range or speed, is the decisive factor in air power today. What makes the Flying Fortress supreme is not its range, which is not as great as that of Nazi or Italian planes, or its speed, which can not match the latest fighters or attack-bombers. It is its ability, through the turbo-supercharger, to maneuver in the stratosphere, higher than any pur-

suit plane can follow. The nation which can maintain altitude supremacy is the nation which will win the war in the air. The Germans are experimenting on a plane with a 50,000 foot ceiling.

Flying in the stratosphere is like floating through a haunted house. Breath comes short; air is cold (40 to 73 degrees below zero). Strange things happen to the motor without a supercharger: greased bearings freeze fast, instruments fail for lack of pressure, vapor locks develop. Stranger things happen to a pilot without a pressure cabin: nitrogen bubbles in his blood, an arm or leg may be suddenly paralyzed, or his eyes may see double. Rubber de-icing boots grow brittle and crack to pieces. Camouflage paint peels and flakes like dandruff on return to earth. Both men and machines must be of superior mold to survive the terrific strain.

Major R. W. Schroeder, once holder of the 38,180 foot altitude record, exhausted his oxygen at that height and plunged unconscious for five miles, but miraculously landed safely. The 67 degrees below zero temperature had frozen his eyeballs, but the motor functioned well enough. Men, not machinery, are likely to crack in stratosphere bombing.

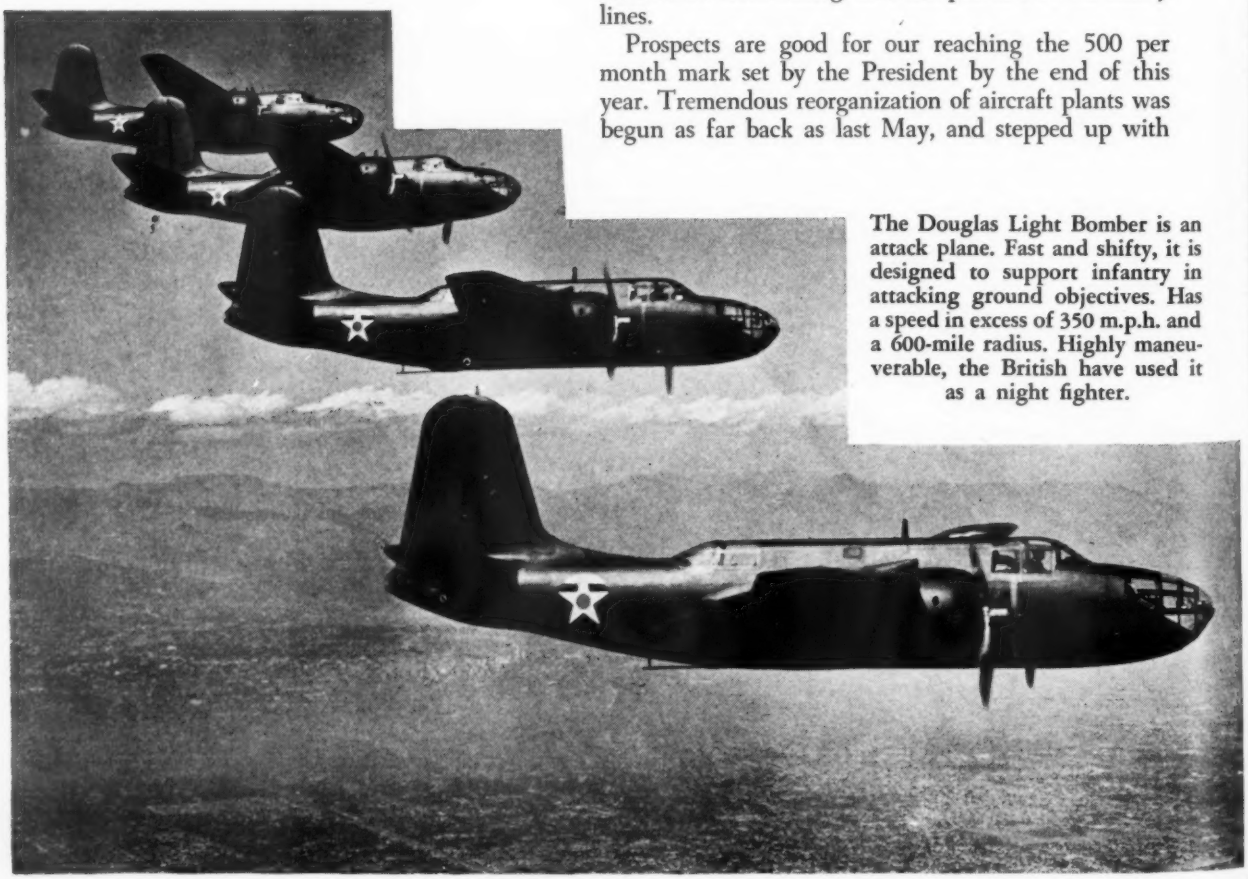
U. S. Leads Strato Field

Americans are peculiarly well equipped to hold the lead in the production of the stratosphere bomber. It is the logical weapon to have developed in a land of lofty mountains and vast distances. We have the raw materials (once existing bottlenecks are wiped out), the skilled labor, the floor space and proving grounds, the pilots in training. Test flights to meet stratosphere conditions are now being held by Boeing at a cost of $1,000 per hour, testing new plastics, insulations, substitutes for oil and grease, and pressure suits, as seen in the picture "Dive Bomber." No other nation, except possibly Russia, can come close to us in this field. Our problem now is to get the planes off the drawing boards and into the air fast enough to maintain our present lead.

This means freezing present designs, cutting down on variety of specialized types, and combining their best features into one or two models for mass production, the same process England went through in putting out enough Spitfires and Hurricanes to hold the Luftwaffe at bay. Experts say the world's finest planes are still on paper, some in U. S., many on Axis drawing boards. But to produce them means complete upheaval of existing facilities, another year or two of delay before planes roll off the lines. And we cannot afford to wait. The present lull in Axis air activities indicates an all-out industrial effort to match or better our new four-engine bombers, dive bombers, flying boats, and pursuit ships.

Even since the President's speech on January 6, plane production statistics have filled the air like news clippings in prop wash. Planes by hundreds and thousands have been rolling off these pen-and-ink assembly lines.

Prospects are good for our reaching the 500 per month mark set by the President by the end of this year. Tremendous reorganization of aircraft plants was begun as far back as last May, and stepped up with



The Douglas Light Bomber is an attack plane. Fast and shifty, it is designed to support infantry in attacking ground objectives. Has a speed in excess of 350 m.p.h. and a 600-mile radius. Highly maneuverable, the British have used it as a night fighter.

the government's recent recommissioning of automobile factories to manufacture plane parts and machine tools.

Pooling Potentials

Holding the shotgun, since his appointment last May as Assistant Secretary of War for Air, is Robert A. Lovett, alumnus of the famous Yale Unit of flying volunteers. In devotion to air power as more decisive than troops or ships, he follows the late General Billy Mitchell, who was court-martialled during the lull in American defense. Now that the Nazis have proved Mitchell was right, Lovett is getting the job done by walking more softly, talking more persuasively. He is responsible not only for pooling of manufacturer's potentials, but for organization of the Army Air Forces into striking units. Lovett is by no means all talk and reorganization. In World War I, as a Navy bomber pilot, he won the rank of Lieutenant Commander and the Navy Cross, still flies his own plane when he has time.

Exactly what type of plane will emerge from the new production process is of course a closely guarded secret. But from specifications already released, a general idea of the various types of planes may be inferred.

For stratosphere bombing, at heights of 25,000 to 30,000 feet, we will have the B17-E or Flying Fortress, the B-24, Consair's Liberator, and the still experimental B-19's exhaust-driven turbo-supercharger, and power driven turrets, innovations which have held up assembly lines for months.

B-17E World's Highest

When completed, the B-17E will have a top speed of over 300 m.p.h., a radius of action (to target and return) of 1,700 miles (which means a total range of 3,600), bomb load of 4 to 5 tons, ceiling over 30,000 feet, highest in the world.

The B-24 is a bit smaller and faster: 1,500 mile radius, 26,000 ft. ceiling. Its unorthodox Davis-Caltech thin section wing permits low drag and easy handling.

The B-19, an 80-ton experiment by Douglas, is slow (200 m.p.h.), has a wing spread of 212 feet (almost twice the B-24), but can stay aloft two full days, cruise 7,500 miles with 8 tons of bombs.

The British have giant bombers almost as big; their latest, the Handley-Page Halifax, has a wing span of 99 feet, 4 liquid-cooled in-line Rolls-Royce Merlin motors (considered by airmen among the world's safest), greater bomb capacity than the Fortress, but less speed, range, altitude. The Short Stirling is similar in size and performance, also has 37mm cannon in power

Dauntless dive bombers of the Army Air Corps peel off to deliver a direct attack. These ships are reputed to be far superior to the famed German Stukas, although still not the top dive bomber in this country.

driven turrets, but has Hercules radial air-cooled engines, and maneuverability, after bombs are dropped, superior to the crack Nazi Me 109 pursuits, which the Stirling consistently out-fights.

Nazi bombers of the giant type include the Heinkel 177, reported to have a range of 7,000 miles with 1,000 lbs. of bombs. Chief Scourge of Atlantic convoys are the Focke-Wulf Kuriers, a 4-engine bomber version of the transoceanic Condors Germany used to run to South America. These carry either 30 armed soldiers or several tons of explosives, besides the standard bomber crew of six. Like the British Stirling and Halifax, they carry cannon in power turrets and bomb bulges. Their service ceiling is 28,850 ft., range 2,300 miles at 224 m.p.h. Both these giants as well as the big Junkers, Ju 96, can do better than 300 m.p.h. But the British claim that in spite of their speed and heavy armor, they have not worked too well for the Nazis. Also disappointing, and curtailed in production, is the new 4-engine Dornier DO-19, weak in horsepower, altitude, speed.

A new Nazi plane recently crashed by a balloon barrage in Britain had a range of 4,500 miles at 200 m.p.h., or a cruising speed of 294 m.p.h. at 19,000 feet. Powered by two fan-cooled 14 cylinder radial motors, it can carry either torpedoes or bombs, 4,000 pounds. A special brake in the tail makes it a dive bomber as well. A development of the Dornier "Flying Pencil," it could be a definite threat to all but our latest high level bombers.

Japan has only one 4-engine bomber type, but it is bigger than the Boeing B17-C. The Japs have jammed features copied from four foreign planes all into one. The Mistubishi 92 is a 144 ft. baby, hybrid offspring of the Wellington, the Douglas DC-3, the He 111 and the Junkers G39. Performance figures for this plane are not available, but lacking both supercharger and bomb sight, it cannot be used for stratosphere bombing.

The Italians hold the world's distance record with their Savoia-Marchetti 82, of which they have an estimated 100 in reserve. They are now testing the Piaggio P 108-C, a 4-motor bomber transport, as well as experimenting with a plane without propellers, driven by air jets sucked through the nose.

Likewise in the experimental stage is the Soviet V-760, a 6-engined giant with a wing span of 144 ft. equal to the Douglas B-19, but weak in horsepower, and hence lacking range and altitude. Like the Short Stirling, it has a tremendous bomb capacity. The Reds also have in their old model TB-6 a twin-engined bomber capable of carrying a 6,600 bomb load 310 m.p.h. at 26,240 ft. This is a high-level bomber, but not up to the Fortress or Liberator.

Bombing at 15,000 to 25,000 feet is less dependent on good weather, more accurate, still fairly free from A.A. fire. Greater bomb loads are possible than in stratosphere bombing. Targets can be more restricted: instead of a general district or town, definite docks and factories can be hit. But risk of interception and deflection from combat planes becomes greater as the bombing range is made more accurate, hence the need for heavy armor and high maneuverability in this class of plane.

In this field as well, U. S. Army planes may lead the world. The Martin B-26 (called the Marauder by the British), so new that complete performance figures are still secret, has two 1,850-h.p. engines, flies at more than 350 m.p.h., can carry 3 tons of bombs more than 2,000

Barrel-Bodied Brewster Buffalo fighter has been called by British Far-East pilots "unbeatable for close quarter combat." The Buffaloes are prime favorites with the Dutch and have proven their superiority in many encounters with the Japs.

miles. It is thus an improvement over the Baltimores and Marylands which, with British Wellingtons, Whitleys, Manchesters and Hampdens, have been carrying on the bulk of RAF raids on Germany, Italy, Libya. United planes seem to have the edge on the Axis here too.

New Nazi Bombers

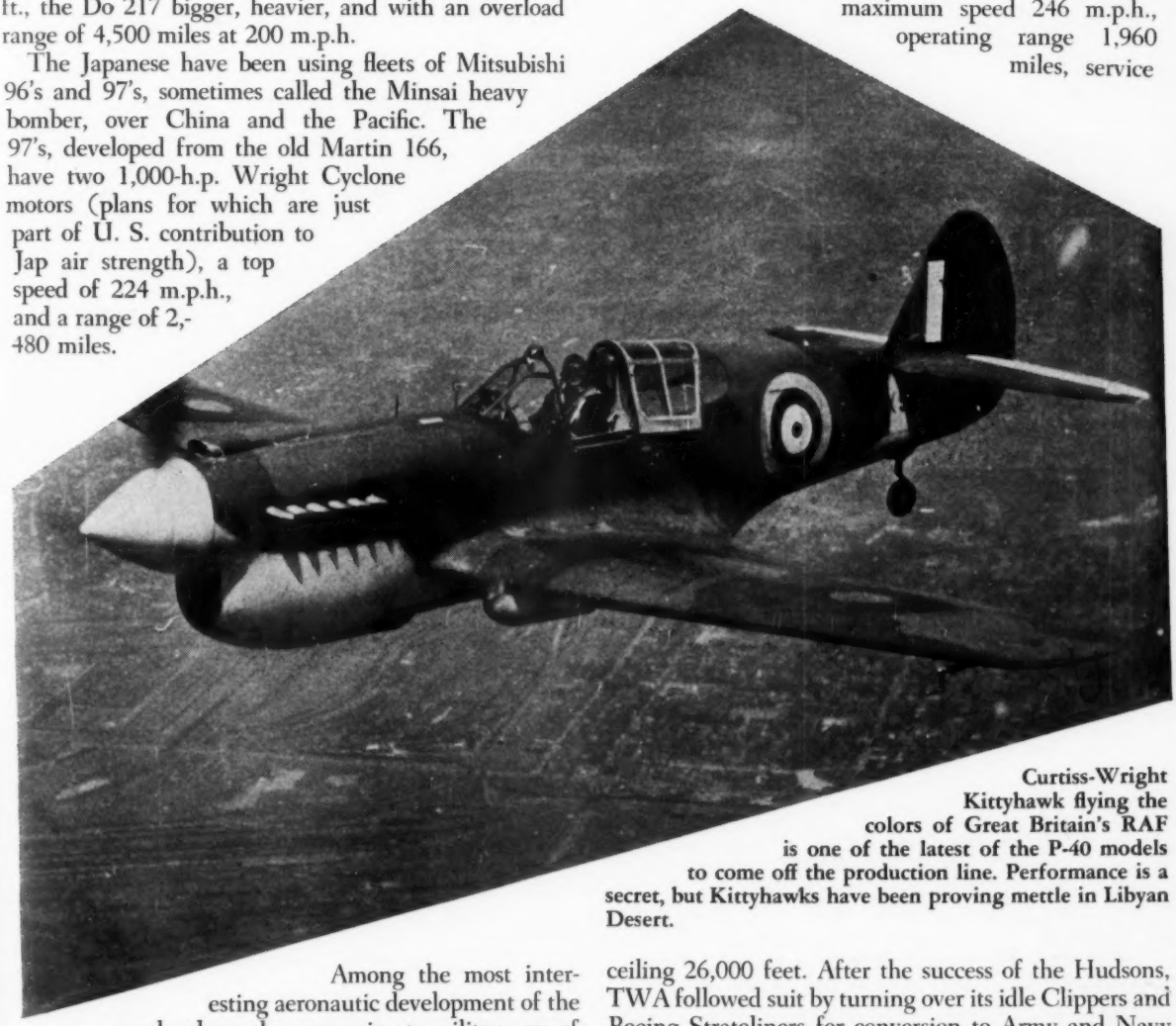
Latest German 2-engine bombers, said to be powered with 2,000-h.p. motors, include a new Henschel and the Heinkel He 119. Already in use are the Dornier Do 215 and 217, the former with a maximum speed of 311 m.p.h. at 16,400 ft., and a service ceiling of 29,600 ft., the Do 217 bigger, heavier, and with an overload range of 4,500 miles at 200 m.p.h.

The Japanese have been using fleets of Mitsubishi 96's and 97's, sometimes called the Minsai heavy bomber, over China and the Pacific. The 97's, developed from the old Martin 166, have two 1,000-h.p. Wright Cyclone motors (plans for which are just part of U. S. contribution to Jap air strength), a top speed of 224 m.p.h., and a range of 2,480 miles.

ruggedness. They came through the hell of Dunkirk with the upper skin of their wings wrinkled from dive bombing. New sets of wings were replaced in four hours. Out of more than 100 in action, each plane making from 6 to 8 trips ferrying officers and men back to England, only 7 planes were lost.

More of these successful transplants have been ferried across the stormy Atlantic than any other model. Leaving from secret landing fields in Newfoundland, they make the crossing in some 12 to 15 hours.

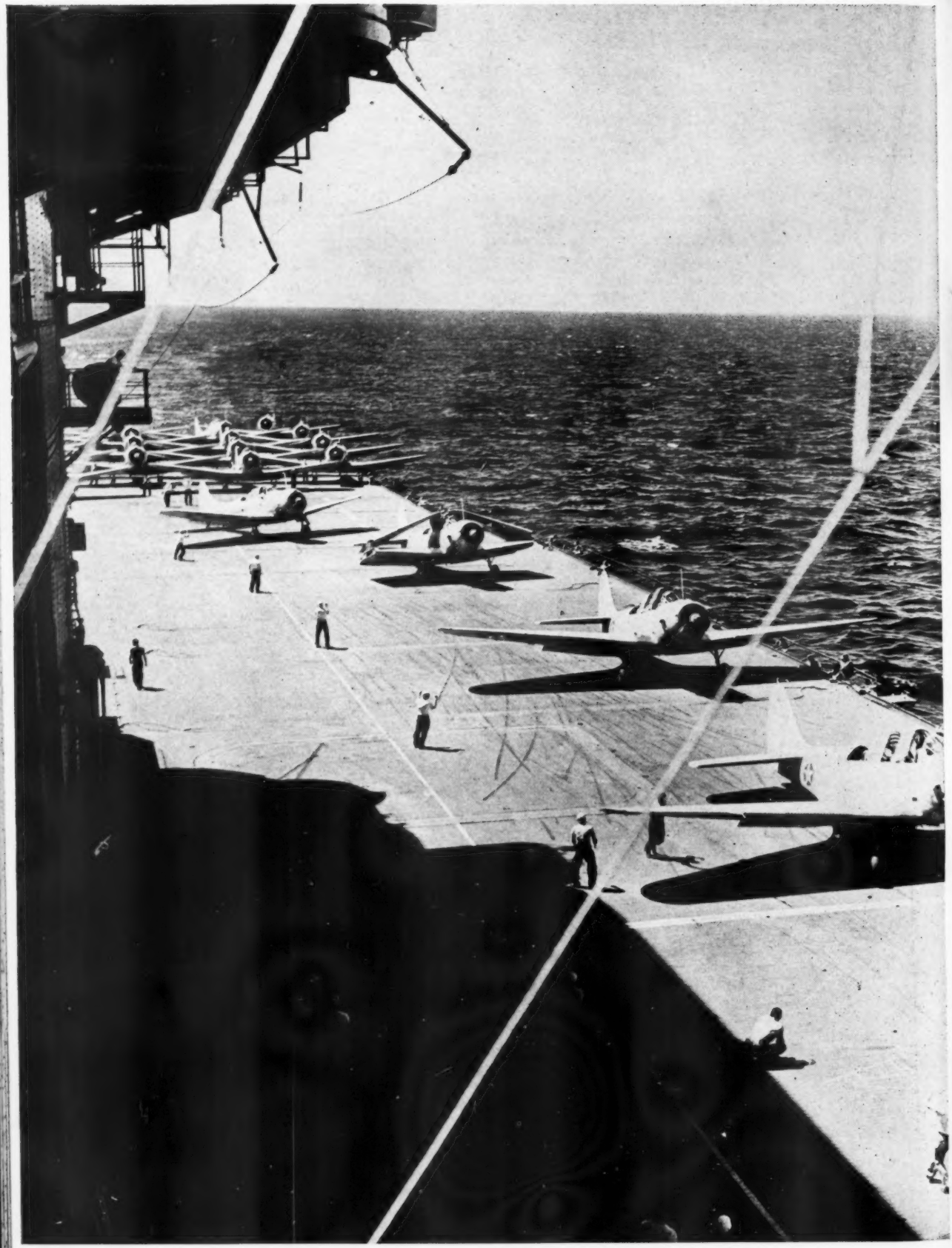
Performance figures for these Lockheeds are: two 900-h.p. Cyclone or Wasp engines, maximum speed 246 m.p.h., operating range 1,960 miles, service ceiling 26,000 feet. After the success of the Hudsons, TWA followed suit by turning over its idle Clippers and Boeing Stratoliners for conversion to Army and Navy use. Designed for substratosphere cruising, these have great wing span (107 ft.), ceiling (24,000 ft.), range (2,340 miles), carrying capacity and speed (250 m. p.h.). they should prove mighty welcome additions to the long-range fleet.



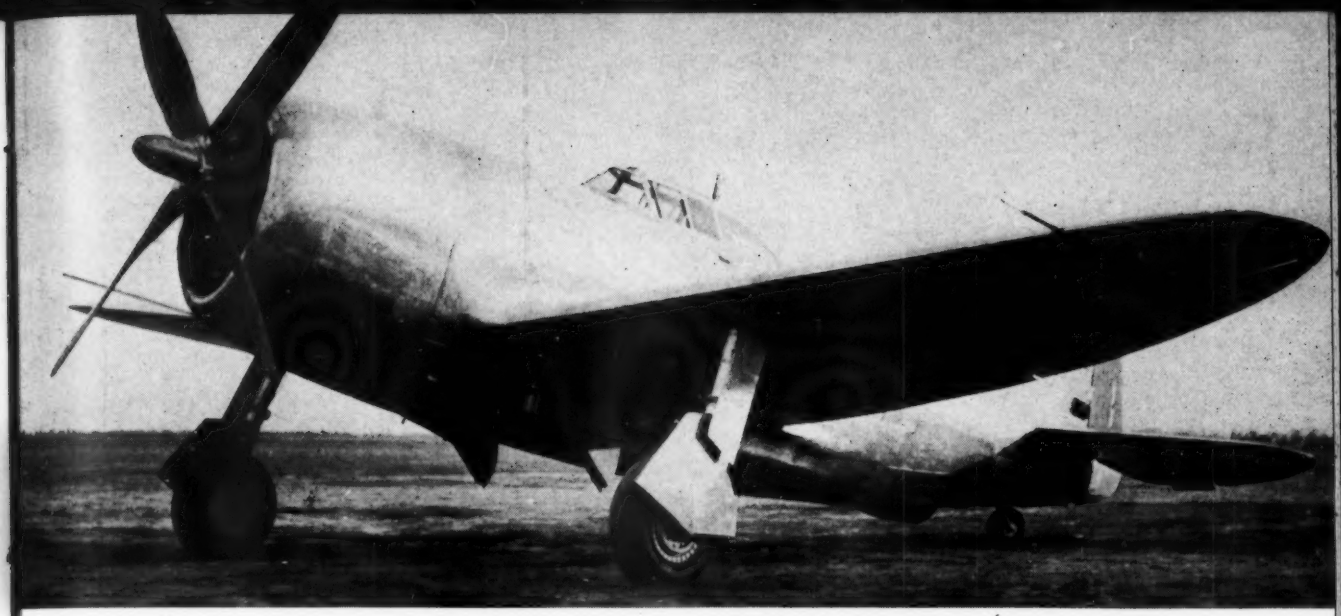
Curtiss-Wright Kittyhawk flying the colors of Great Britain's RAF is one of the latest of the P-40 models to come off the production line. Performance is a secret, but Kittyhawks have been proving mettle in Libyan Desert.

Among the most interesting aeronautic development of the war has been the conversion to military use of big commercial transport planes. First in this field was the Lockheed Hudson 14, commercially called the Lodestar. Originally turned over to the RAF as a long-range patrol and reconnaissance plane, it soon proved its all-round utility. The first American-made planes to see action in large numbers, they have been praised by pilots on all types of duty for their comfortable heated cabins, "auto-designed" instrument boards, ease in handling, reliable motor performance, and remarkable

Other powers also use converted giant commercial liners. Germany has the Junkers Ju89 and Ju90, once holder of the world altitude record. The military version has four 1,100-h.p. Jumo in-line motors, wing



Torpedo bombers preparing to leave flight deck. Note wings beginning to unfold on third plane as bombers are waved forward by deck crew.



Republic Thunderbolt is the Army's new high-altitude fighter. Powered by a 2,000-h.p. air-cooled engine, the Thunderbolt, designated the P-47, is reported to have done well over 400 m.p.h.

span 114 ft., top speed 256 m.p.h., range 1,875 miles.

The 96 ft. Blohm & Voss 142 is almost as fast as the Junkers, covers a range of 2,730 miles. It was used to land troops in Norway and Crete.

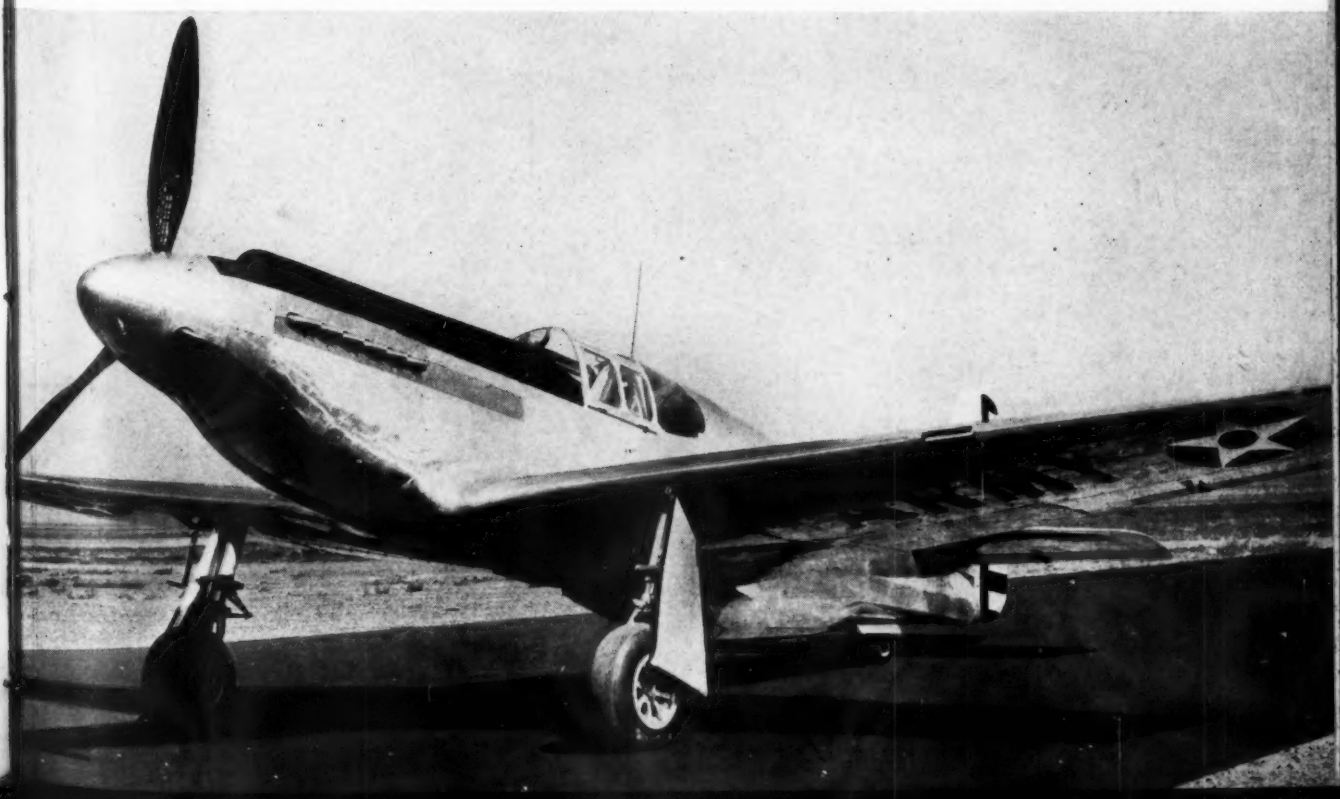
Japan, having concentrated on war planes while European and American commercial interests expanded has no model directly comparable to these converted peace planes.

On Naval Aviation

On the seven seas, where the crucial test of air forces may arise, with battle and communication lines already stretching across thousands of miles of water, the U. S. Navy also appears to have the Axis highcarded. In this field high speed and altitude are not so vital, since on both offense and defense low level cruising is essential to spot ships and subs. Danger of attack by interceptors or antiaircraft is much smaller, from carrier-borne aircraft having less speed than land-based craft.

Old Faithful of the Atlantic Patrol is Consolidated's 104 ft. 2-engined Catalina, the Navy's PBY-5, with a

Strikingly similar in design to the famed German Messerschmidts, the North American Mustang has proven a favorite with the hard-fighting pilots of the R.A.F.



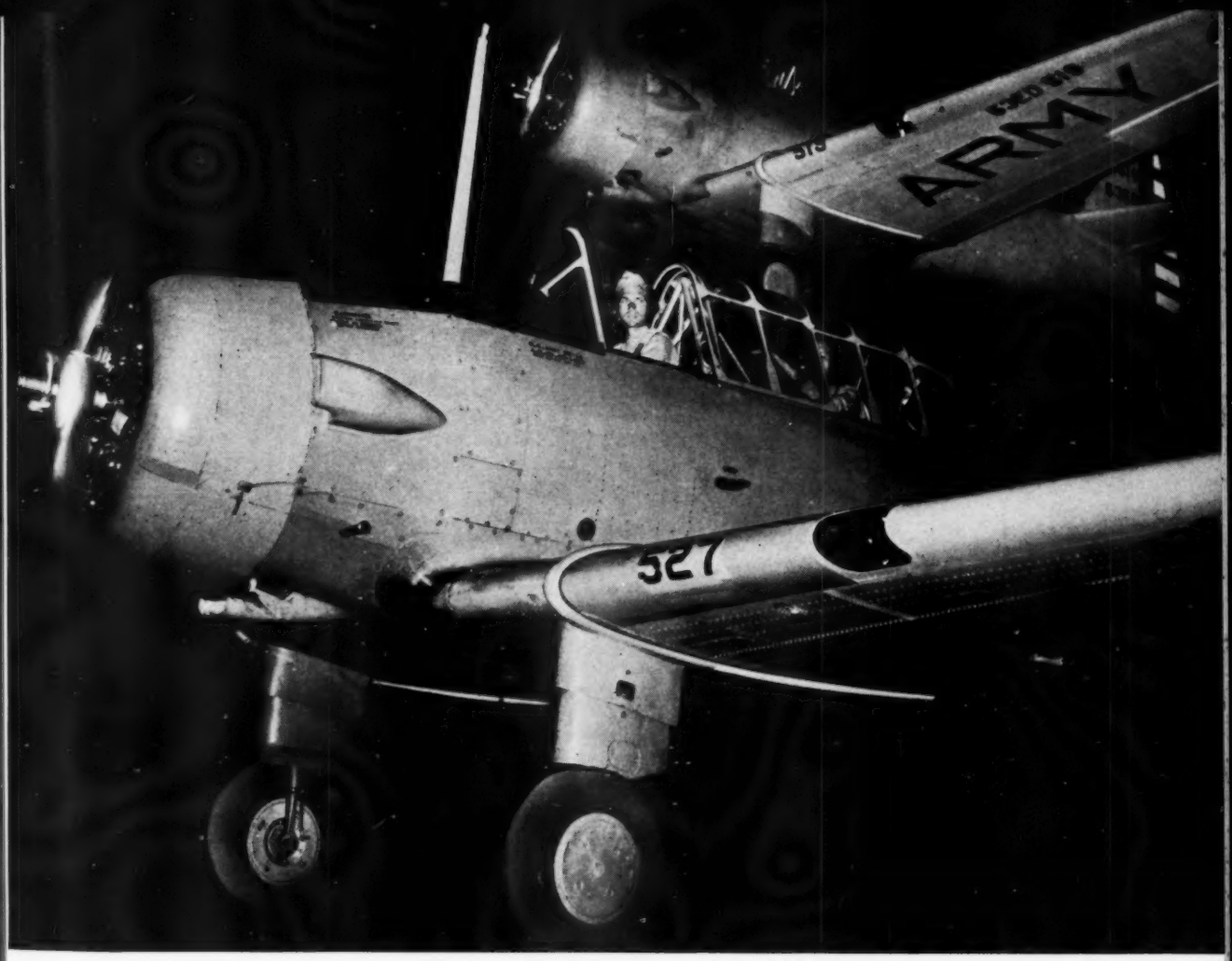
Grumman Wildcats in the hands of Marines at Wake Island fought off Japs until overwhelmed by numerical superiority. Has a 1,200-h.p. engine and a top speed of 350 m.p.h. Chunky fighter carries .50 cal. machine guns and fragmentation bombs.

range of 4,000 miles at 130 m.p.h., and service ceiling of 25,700 ft.

Developed along the same lines is the Navy's latest PB2Y2, 4-motored patrol bomber sometimes called the Coronado. This has heavily armored power turrets in nose, tail, and sides, a range of 5,200 miles with 7 tons of bombs, and a top speed of 226 m.p.h.

Martin's PBM-1 has similar specifications, but of necessity, having only 2 engines, carries only half the bomb load. This model has gull wings, lifting the

The famed flying gun platform, or Bell Airacobra, has proven itself the finest middle-altitude fighter in the world. Armed with a 37 mm cannon, which can be seen protruding from the propeller hub, and numerous heavy caliber machine guns, the Airocobra is claimed to have hit speeds exceeding 400 m.p.h. Plane also affords downward view.

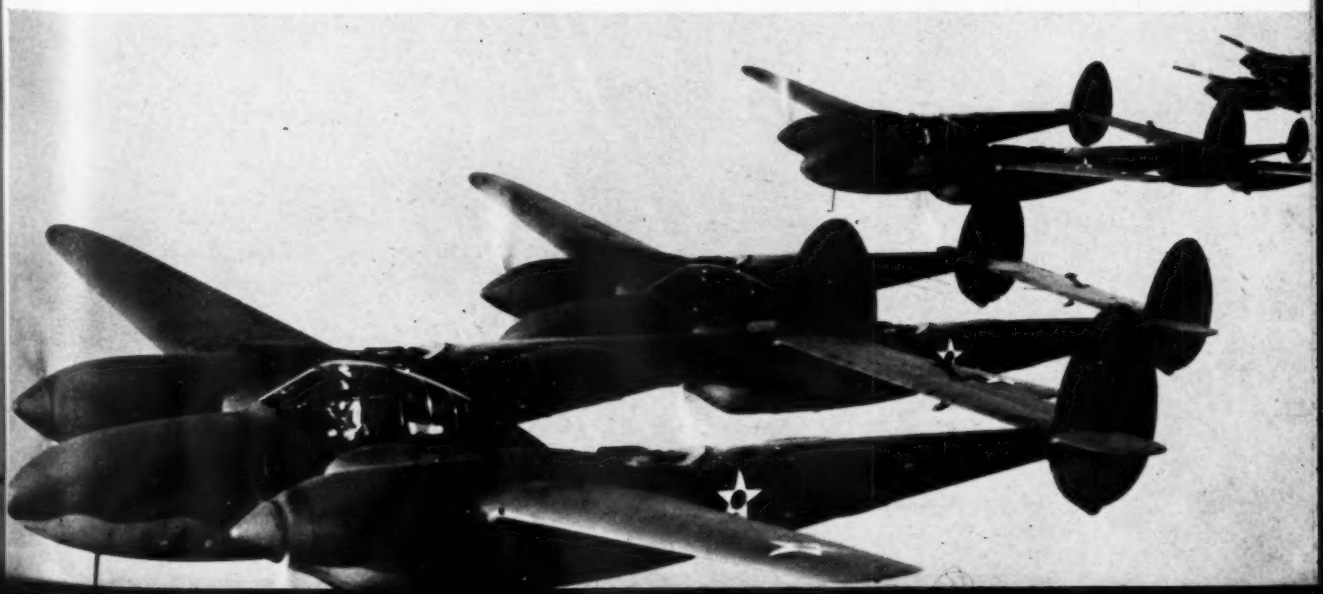


Cadets at the West Point of the Air, Randolph Field, Texas, form echelon during night formation flight training.

engine high, giving the propeller good clearance above the water. Martin's Mariner patrol-bomber is rolling out in increasing quantities.

Britain's seaplane patrol consists chiefly of Sutherlands, built by the makers of the Stirling bomber, and Saunders-Roe Lerwicks. Both these planes are slower and heavier than the Catalina, more landbound than Coronado, Liberator, or Martin patrol bombers.

Lockheed lightning interceptor-pursuit planes, the P-38, called the fastest planes in the world. Can claw into the air at unbelievable rate to intercept raiding bombers. Equipped with turbo-superchargers for high-altitude fighting.



Greatest number of Nazi flying boats are made by Dornier, in great number of models for varying duties: troop transport, mail and supplies, reconnaissance and patrol. Latest and best seems to be the Do 26K, having four 600-h.p. Jumo motors, a 23mm cannon in nose turret, and machine gun blisters aft of the wings. This 98 ft. sea eagle has a maximum speed of 208 m.p.h. (much faster than Catalinas or Sutherlands), a range of 5,100 miles at 140 m.p.h. It is still no match for the giant Liberators or fast Marauders.

Other Nazi seaplanes include the Do 24, one of the few 3-motor planes aloft today, with a range of 2,000 miles at 161 m.p.h. The Do 18K1 is slower, has range of 3,220 miles.

Faced with the task of covering nearly 3 million square miles of the Pacific, Japan has gone in heavily for big Navy seaplanes and patrol bombers. She has 2 twin engine types, one with 850-h.p. Wright-Cyclone motors capable of doing 178 m.p.h.

Three-motor types are made by Kawanishi, developed from plans furnished by the British firm of Short Bros., makers of Sutherlands and Stirlings. The 90-2 has a 98 ft. wing span and a range of 1,560 miles.

Latest and greatest punch of the Japs' naval air arm is the Hiro 97: 134 ft. wing span, four 720-h.p. Hispano-Suiza motors, a top speed 200 m.p.h. This could outfly all but very latest U. S. sea ships.

The Japanese seem to have devised some means of rapid building and deploying of aircraft carriers which could release clouds of smaller bombers and fighters at many points almost simultaneously. This was the strategy of their attack on December 7.

The Axis thus has the planes to bomb either coast of the United States. The Germans are said to have 150 Heinkel 177's which could cross the Atlantic from French bases, drop 1,000 pounds of bombs each on New York or Washington, and return to Europe without stopping. British report spotting mile-long runways in Norway from which these giants may be launched against Russia, England, or the U. S. There are rumors of huge rocket-propelled bombers on German proving grounds.

Could Refuel in Mid-air

The Italian Savoia-Marchettis could also make the trip. In addition, the Nazis have the Dornier 26, a catapult plane released from armed merchantmen to harass Atlantic coastal defenses and shipping. Any of these or shorter range bombers could be used to cross the ocean between dawn and dusk, refueling in midair from flying tankers to increase the cruising range, and strike at Caribbean or U. S. continental bases before returning home.

That such bombing will occur is the opinion of most experts. But sustained raids such as those in London, Manila, or Singapore are not possible, unless Axis drawing boards and production units can perform an industrial miracle. Air raids on American cities will be largely for sake of morale and propaganda value, rather than military achievement.

Far different is the situation in Singapore and the Netherlands East Indies. Dutch leaders, knowing that U. S. defenses, including Hawaii, are not subject to prolonged attack, complain bitterly of American "overcaution" in holding thousands of planes at home bases. Two thousand bombers, they say, would hold the South Pacific against anything Japan could show. Less than one-sixth of that number are now on hand.

Since Singapore was another fatal case in the epidemic of "too little and too late," America's air forces and production lines must put forth even greater effort to stamp out the "yellow lava" erupting in the Pacific. And the effort must be made now, while American-designed planes pack the world's strongest punch, while American industry can roll out its mightiest air armada.

Rolling off production lines at a faster rate than the much larger and more complex bombers, American fighter planes are now making their mark on the world's major battlefronts.

Over Far Eastern jungles they are proving more than a match for Japanese bombers and pursuits; over African desert, Russian steppes and the English Channel they have met and stood up to Germany's best.

At the start of the present conflict, America led the world in the quality of its bombers, but lagged far behind in the quality of pursuit and interceptor planes. Behind the surge to the fore is a tale of despair, bottlenecks, overtime, hard work, and American ingenuity. Our highest speed pursuits were laggards compared to the hurtling English Spitfires and German Messerschmidts; while our pea-shooter variety armament was woeful compared to the British Hawker Hurricanes, capable of chopping an adversary to bits in a matter of seconds.

But out of the handicap of their lack of information on battlefront planes, American craftsmen have put forth, in the short space of a year, pursuits that have chewed their way through all types of opposition.

The feared 'Schmidts of the crack Luftwaffe have been shattered by sturdy Curtiss Tomahawk and Kittyhawk fighters of the British Libyan command while barrel-hands of the tough, skillful Dutch have been wreaking havoc among the planes of the Rising Sun.

In far off China and Burma American volunteers of the Flying Tigers' unit have completely battered down attacks on the vital Burma Road in old Curtiss P-40 fighter planes.

The Curtiss ships of the P-40 class and the Buffaloes have been the first of the American fighters to match snap-rools with the enemy, but more modern engines of destruction are straining to enter the fray.

A small force of P-40's has been a mainstay for General Douglas MacArthur's beleagured army in the Philippines; has knocked down 38 Japanese planes in the first seven weeks of the war, operating nearly always

Latest of the famous Curtiss-Wright pursuit line is the P-40F or Goshawk. Note unobstructed view pilot has forward.

against far superior forces. The P-40's on the fighting fronts have heavy machine guns, armor-plated cockpits, self-sealing fuel tanks. Powered with a stepped-up Allison liquid-cooled engine, these planes and their engines have stood the gaff of war operations under the worst flying conditions.

The P-39, the famous Bell Airacobra, nicknamed the Caribou by the British, is described by ranking United States officers as the finest middle-altitude fighter in the world. It is reputed to have downed highly rated Spitfires in mock combat in Britain. The Airacobra carries more than three-fourths of a ton of guns and ammunition. The 37mm cannon mounted in the nose can knock out the world's largest bombers, is a potent weapon against tanks.

Today's P-39's illustrate how improvements are made between the first few production models—frequently mistaken by critics as the end product—and the final model on which large-scale output is frozen. The original Airacobra came out in 1939. It was pared down in outline to cut 50 per cent off the "drag" and increase speed by 50 miles per hour. Four guns, 500 pounds of armor plate were added.

Probably the most hush-hush "job" on all the world's production lines is the Republic Thunderbolt, designated the P-47. This ultra-secret crate of dynamite is

Goshawk is latest fighter modification of all Curtiss-Wright P-40 series. Highly maneuverable, and heavily armed, entire P-40 series have proved exceptionally rugged in combat.

the army's newest, fastest fighter-interceptor. A tremendous package of power, the Thunderbolt boasts the world's most powerful engine on a pursuit ship—a 2,000 horsepower Pratt and Whitney radial air-cooled. Believed able to outfly and out-fight any other known ship, the P-47 carries enough guns to generate at top firing speed an impact equal to the force of a five-ton truck hitting a brick wall at 60 miles an hour.

The Thunderbolt is built to take rough treatment. Long and big-nosed, it weighs 13,500 pounds, measures 41 feet at the wing tips. It has done 680 miles an hour in a power-dive test, and has stood up under the strain of the pullout without a whimper.

Standing the burden of interceptor work until the Thunderbolt reaches the battlefront is the Lockheed P-38, christened the Lightning by our British allies. The Lightning is said to be the fastest military airplane in the world. Powered with two liquid-cooled engines, the Lockheed has clawed into English skies at unbelievable rates.

Confusing to the British upon its arrival because of its silhouette similarity to the famed Messerschmidts, the North American Mustang fighter has proved a highly maneuverable ship and extremely delicate to handle. It is another liquid-cooled engined-pursuit with the standard amount of firepower.

The P-66, or Vultee Vanguard, has proven a tough all-round fighter in the Far East where its top speed is superior to any of the Jap's known types.

Offensive planes for the Navy must be specially built for ship-board use. The United States Navy is generally considered to have the best-developed shipboard fighters of any in the world. None of the action in which our fleet has engaged in so far has tended to change this viewpoint.

Present outstanding Navy fighting plane is the fast Grumman high-altitude fighter. Named the Wildcat, it proved itself on the heroic stand of the Marines at Wake Island. Four Wildcats returned to the air again and again in the face of over-whelming odds, downed Japanese opponents and even carried bombs enough to sink Japanese warships. The British have used the Grumman, called by them the Martlet, all over the world.

Used by the Navy as a shipboard fighter, the F-2-A has achieved its greatest fame in the land version, the Buffalo. It was used to defend Singapore; has been used offensively in large quantities by the Dutch East Indies Air Force. Armed with .50 caliber machine guns, bullet-proof windshields, armor-plated cockpit and self-sealing gas tanks, the Buffalo is termed "unbeatable for close-quarter combat" by veteran English pilots in the Far East.

The Vought-Sikorsky F-4-U is the overwater fighting sister ship of the Army's Thunderbolt. It is the Navy's hardest-hitting, most powerful high-altitude interceptor. Designed especially for carrier operation, its top speed is more than 400 miles per hour. It is powered with a 2,000 horsepower air-cooled engine, is thirty feet long and has a wing span of 40 feet.

Up to December 7, the Army and Navy were dependent on reports from observers for judgment of their fighting planes. Now those planes are being fought by Americans. Their record so far indicates that this country can match and better the best the enemy has to offer.

The modern warplane is virtually a "flying gun platform" with cannon, machine guns, and armor.

In regards to superior equipment, the urgent demand for more firepower has been most frequently brought to the public attention. Firepower means as much to the tactical airplane as the size and the number of guns means to a battleship; and, in combat, can be more important than speed and performance. Actually, this word "firepower" may be applied to briefly describe an airplane's tactical qualifications.

Increased firepower is a direct outgrowth of the recent increases in speed, caused by the necessities of war—the faster the target, the more shots per second required.

In actual firepower, the machine guns form the mainstay around which supporting units are installed—those being bombs and cannon. The average machine-gun is capable of firing from 600 to 1,200 of ammunition per minute, depending upon the strength of the drive spring, caliber, ammunition, temperature, synchronizing system if used, and the design and location of accessory equipment, i.e., feed and ejection chutes, ammunition boxes, etc. However, rate of fire must not be misconstrued, as machine guns are rarely fired for a full minute.

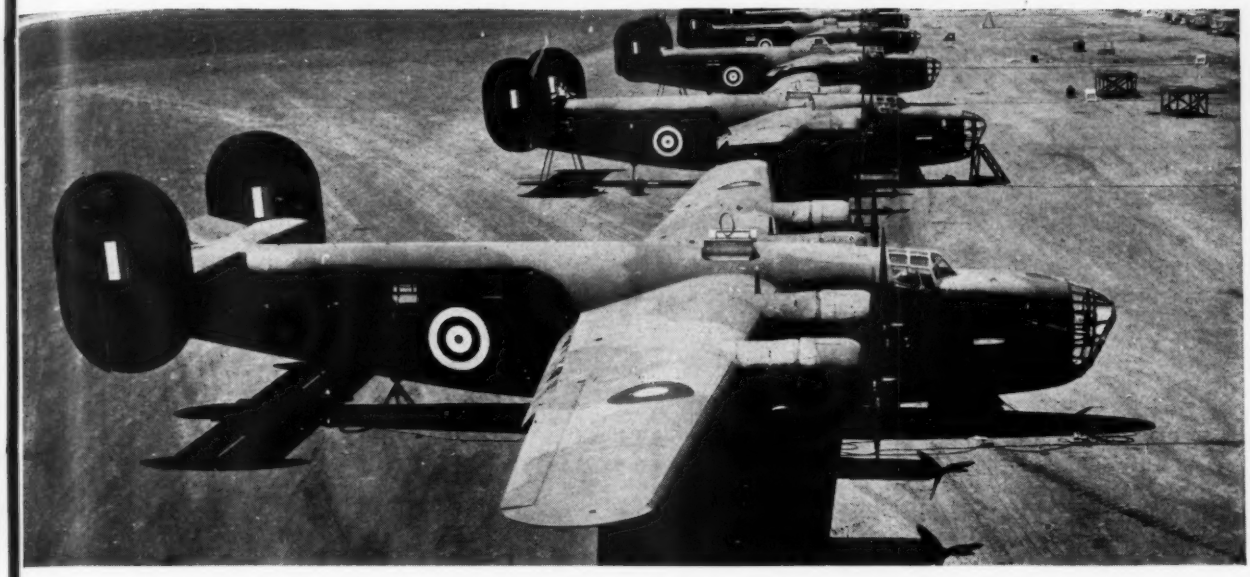
The advent of aircraft cannon is not new. As is commonly known, their use was tried during World War I, both as flexible mounted and stationary. In present aerial strategy the rapid-firing cannon is receiving wide acceptance, having rates of fire comparable to machine guns.

The aircraft cannon enables the airplane to cope lightly-armored tanks, and as larger calibered aircraft cannon are developed, "panzer" divisions will require heavier armor, consequently decreasing their speed and mobility. When used against hostile aircraft the cannon is far more destructive than the faster-firing machine-gun, as its explosive shells prove effective against self-sealing gas tanks.

Cannon Gives Edge to Fighters

At present the cannon gives the advantage of range to the pursuit and fighter type airplane, but a flexible mounted gun, now being installed on heavy bombers, will probably neutralize this temporary advantage.

The manufacture and use of protective armor is an industry in itself, with a history dating back to ancient Greece. In aircraft, armor plating was successfully used in the all-metal Junker planes during World War I and, after being slighted for about two decades, has now become of prime importance.



Consolidated Liberator four-engined bombers ready for flight to England. These huge craft carry a crew of nine and a load of four tons of bombs. Can cruise 3,000 miles at top speed of more than 300 m.p.h.

In general there are two types of armor plating, one consisting of two or more fused plates of different hardness; the other consisting of a single face-hardened plate. In all cases the harder surface is the one receiving the initial impact.

Given these superb American productions, Yankee flyers will quickly clear the skies for the unending streams of troops, transports and supplies so vitally needed now in the battle areas. Every 24 hours our air strength is growing. The Japs have found that even the Filipinos can fly. They are learning that the Dutch don't argue, and that Dutch flyers are more than a match for any Japanese. In the few details received by American air action in the Far East, it is evident that our men have displayed a superiority in handling their equipment and in outflying the enemy, although the Japs have had a vastly greater number of planes in the air.

Verification of Flying Fortress success stories in the Pacific is given in this eye-witness account of a bombing foray off Davao:

Feb. 12.—I saw the fleet of eight American Flying Fortresses take off from a jungle airport near Samarinda, on the east coast of Borneo, for their January 4 raid on Japanese warships in Davao Bay. Until today I was not permitted to tell the story of the raid in which a battleship or battle cruiser was hit, a destroyer was sunk and several other warships and troop transports were damaged.

I saw all the Flying Fortresses return without damage or casualties. They took the Japanese completely by surprise. Antiaircraft fire did not begin until the last two American planes were over the target and none of the five Japanese fighters which got into the air was within 10,000 feet of the attacking planes.

Four 720-pound Bombs

The model 17-D Fortresses arrived at the jungle airport at noon on January 3. Each of them took on 1,000 gallons of gasoline and four 720-pound bombs. Neither mechanical fuel pumps nor bomb trolleys were available at the field and the task of loading the bombers lasted until late at night and was finished under the light of torches.

The American crews of the bombers were remnants of a group of many airmen whose aircraft had been destroyed on the ground early in the war. They became a potent flying circus, covering prodigious distances from constantly changing bases. Their specialty was surprise raiding.

The jungle quivered as the fortresses took off in the fading moonlight. Each was manned by three officers and five men. The first of the fortresses returned nine and one-half hours later. The grimy, grinning, hungry crews scrambled out. They reported that at least 40 ships, including about 10 submarines and many transports were in Davao Bay. They decided to concentrate on the warships.

Some of the crews did not see their bombs strike because from a height of 25,000 feet a bomb takes 40 seconds to reach sea level. But fortresses following in the rear of the squadron reported a bomb hit on the stern and another near the funnel of the largest ship which men hove to. Another crew reported the sinking of the destroyer.

The five Jap fighters which got into the air apparently were catapulted from warships, but the fortresses were able to climb above the fighters' range.

The day after the raid the bombers moved on to

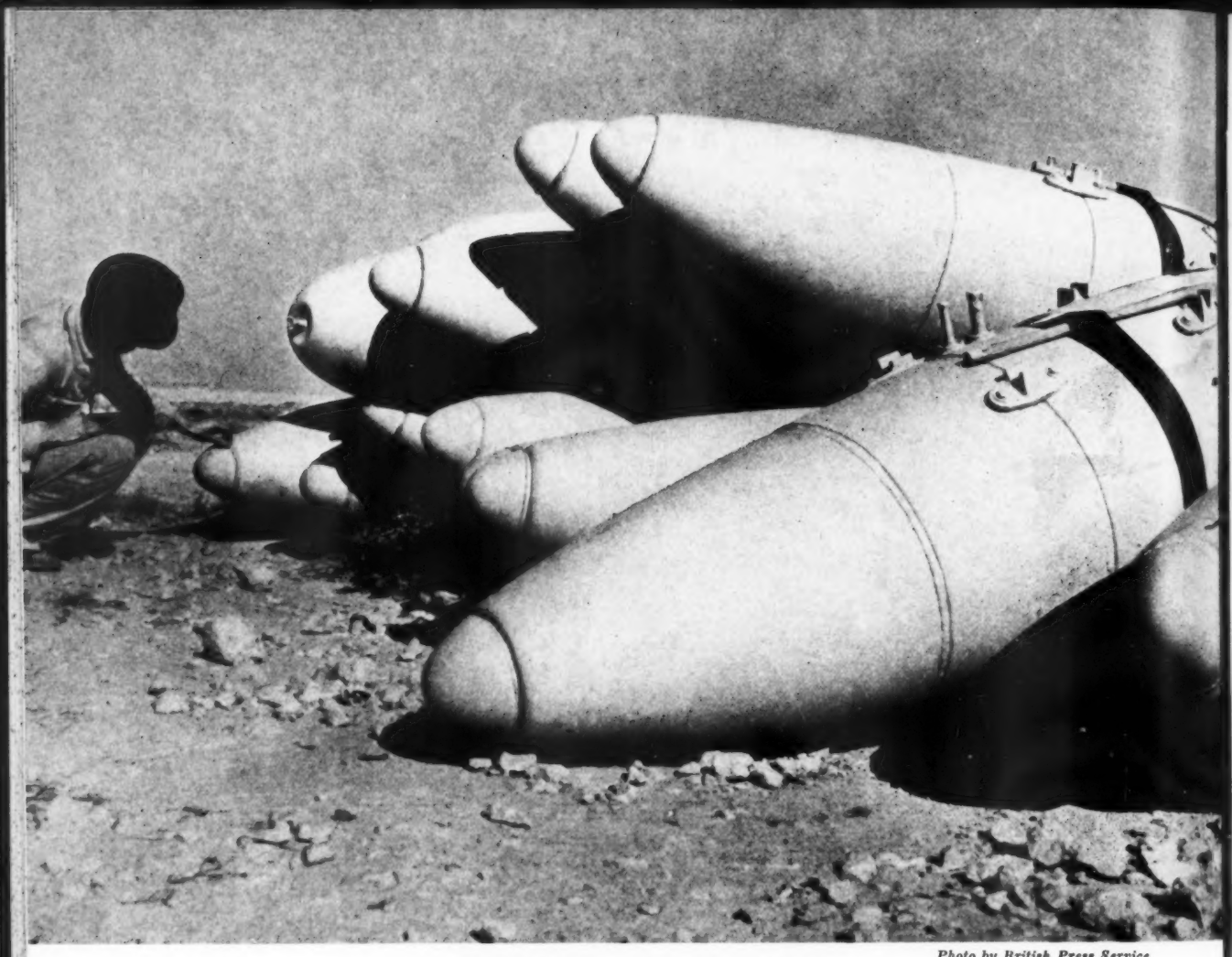


Photo by British Press Service

BIG FELLOWS — BUT NOT BOMBS

In the Middle East—Auxiliary petrol tanks used by Nazi aircraft, which were abandoned together with vast quantities of material captured at a Libyan landing ground.

another field for another attack to keep the Japanese guessing.

That the supply of heavy bombers is a matter of life or death to the United cause in the Pacific is plainly revealed in the desperate SOS delivered in Washington last month by the Indies Lieutenant Governor van Mook. First on his list of emergency priorities was planes: Flying Fortresses, Liberators, Marauders. 800 of these delivered at once, 200 to each of the four crucial points of Rangoon, Java, Sumatra, and Darwin, could shatter Jap convoys, as Makassar proved, hold back the yellow tide until the United nations were strong enough to launch an offensive of their own. To protect the vulnerable Achilles heel of these giants, their take-off and landing points, a thousand fighter planes are needed to hold a minimum number of vital airdromes and clear the skies of Jap interceptors.

Next in importance are antiaircraft regiments, one for each vital sector. The Pacific front could use all the antiaircraft guns the U. S. could produce, man, and ship for months to come.

Third on Dr. van Mook's list is naval craft: destroyers, light cruisers, submarines. Had these been available, the half-pint naval escort of the Japs would never have got troops to Amboina, most serious Dutch loss so far.

Of course the job would not be finished by one delivery even of this size. The Navy would have to keep convoying replacements, until Jap inability to keep pace with American production and supply units would leave her hopelessly outclassed, force her to fall back ón bases inadequately weaponed, give her a lasting dose of the bitter pill of defeat which the Allies are now having to swallow.

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SUPER-TANKS*

Developments Leading to the New Heavy Weapon

By Brigadier General G. M. Barnes**

EVERY day of battle in the current world war adds emphasis to the fundamental importance of tanks in modern warfare. The two prima donna weapons of the present European war have been the airplane and the tank; however, neither of these weapons has proved to be completely effective without the assistance of the other. The Germans in Poland, France, and elsewhere have won quick and decisive battles when these two weapons have been used in mutual support of each other. On the other hand, where the airplane has been forced to act alone, as in the battle for England, the results have not been decisive.

Under the *Blitzkrieg* method of employing airplanes and tanks, the former are first used to soften the enemy; then tanks follow up the advantage with mass attacks concentrated for a breakthrough. Being highly mobile, the tanks can attack the weakest part of a long defensive line. It is very difficult for an army on the defensive to stop a massed attack of tanks with antitank guns spread out to defend a long line. Pill boxes and other defensive strong points with antitank guns capable of penetrating a tank's armor usually are carefully avoided by tanks in such an attack. It is probably true that the best defense against a determined tank attack is an equally determined offensive with an equivalent or larger number of opposing tanks.

The layman, in endeavoring to make a comparison between foreign and American tanks, is often confused by the rather loose classification of tanks into light, medium, and heavy types. Under the classification of light tanks, European countries often include vehicles weighing from five to six tons as compared with the American standard light tank of fourteen tons which would be classified as a medium tank in some foreign countries. It is also well to remember that a large percentage of foreign tanks are now of obsolescent models while the tanks with which our armies are now being equipped are of the very latest patterns.

The design of a tank, like that of any other piece of machinery, is a question of making satisfactory compromises between the various conflicting characteristics of the vehicle and is necessarily based upon military requirements. The military characteristics which must be considered are: armament, armor protection, mobility (including trench-crossing ability, maneuverability, speed, and radius of action), weight, number of men in crew, and speed of production. All these basic characteristics, of course, are interdependent, one upon the other.

The problem of the military tank designer is to balance these conflicting characteristics. As the designer does not know the tactical situation under which the tank is to be employed, he strives to make a type of vehicle which will most nearly fit the probable situations which may be encountered in warfare.

The purpose of any tank is to carry safely the guns, ammunition, and personnel necessary for their operation to the desired point in the minimum of time in order that these weapons may be brought to bear effectively and decisively upon the enemy. Tanks must have armament capable of performing the following general missions: (1) The penetration of armor plate, which is best accomplished by high-velocity, low-trajectory weapons involving the use of high-quality armor-piercing ammunition; (2) High-explosive demolition, which is most effectively accomplished by a low-velocity thin-walled projectile; (3) Operation against personnel targets, which are most effectively overcome by small-caliber machine-gun fire; (4) Antiaircraft fire, which involves precision firing against the high-speed airplane moving in three dimensions through space.

The desire of the tank designer to equip his tank with a large number of high-power weapons is quickly restricted by the number of men in the crew, the space available for guns and ammunition, and by the limitations of weight. To provide space to serve effectively the several types of weapons required may result in a vehicle which has a large silhouette and which is too heavy if the desired armor protection is maintained.

While this subject of armament is confidential as to detail, I am very happy to report that during the last year such rapid progress has been made toward solution of these problems that improvements in the accuracy of fire of our tank weapons of over 1,000 per cent has been possible.

The armor carried by the tank makes it possible for the vehicle to live on the battlefield. Naturally, the designer would like to equip his tank with armor of such thickness that it would be impossible for any type of projectile to penetrate it. It is always a great disappointment to the layman to learn that the armor of any tank can be penetrated, and perhaps this was one of

*Courtesy, *Army Ordnance* Magazine.

**Assistant Chief, Industrial Service, Engineering, Office of the Chief of Ordnance, Brigadier General, U. S. Army.

The new ordnance heavy tank has superior fire power and excellent mobility.

the factors which held back the universal acceptance of tanks for many years. It was always easy to reason that the tank was a very vulnerable vehicle and that its armor could be penetrated readily.

In these arguments against the tank as a fighting vehicle, the principle of employment *en masse* was too often overlooked. Armor provides protection and cover for the working mechanisms and personnel. It is of interest to note that, according to World War records, sixty per cent of battle casualties resulted from low-velocity fragments thrown from projectiles. It is, therefore, obvious that even thin armor provides a great degree of protection. Armor, unfortunately, is the greatest weight-producing factor in a tank and offers the greatest problems in machining and fabrication.

It is the present practice of the United States Army to use rolled face-hardened armor plate. This type of plate gives the greatest protection from small-caliber bullets up to caliber .50. However, it is not well suited to withstand the shock of larger-caliber projectiles. For lightly armored vehicles it is necessary to use face-hardened plate because this is the only type of thin plate which will keep out the bullets from high-powered machine guns.

Rolled homogeneous plate offers the best ballistic values against projectiles larger than machine-gun bullets. It furnishes protection against small-arms bullets which cannot penetrate so great a thickness and is also a superior type of plate for absorbing the shocks of heavier-caliber cannon projectiles. It can be welded and formed.

The use of cast armor in the United States is increasing. Up to the present time, cast armor has been made to give about ninety per cent of the ballistic value of rolled homogeneous plate. Cast armor has an important design advantage in that it can be contoured and sloped to any desired shape and thus achieve some advantage in ballistic values.

Tank plates may be riveted or welded together. While we completely welded a tank as early as 1933, and while we have made armor-plate castings at Watertown Arsenal over a long period of years, welding and casting have entered the field of design extensively only during the last year. The urge to weld or cast comes largely from the desire to eliminate riveted structures which are somewhat weak ballistically. The rapid development in welding armor during the past year insures that welding will be extensively used in tank manufacture in the future.

In regard to armor, it may be said that the trend of modern design is toward the use of thicker plates. Here the tank designer is confronted with a very difficult problem because, as the armor thickness is increased, the weight of the vehicle is increased, requiring greater horsepower—until the law of diminishing returns in tank design is encountered.

Mobility is likewise one of the fundamental tank characteristics in that it determines the facility with which the guns of a tank can be brought to the point of desired employment. The mobility naturally depends upon the weight of the vehicle, the power of the engine employed, the width of track, the length of the vehicle, and the corresponding pounds-per-square-inch pressure between the track and the ground. By "mobility" we mean not only speed but also maneuverability under different conditions of speed and terrain. Mobility is of vital importance because it affords additional protection to the crew.

The safety of the tank personnel is dependent not only on the thickness and quality of the tank armor, but also upon the tank speed and the type of terrain over which employed. Thus, if a tank can move at a high rate of speed, it will present itself as a target to the enemy for a limited time. The length of time will determine the number of shots the enemy tank gunners can fire which will determine the number of hits which can be made. Since any armored vehicle is capable of absorbing a certain number of penetrations before it is put out of action, this time factor is of great importance. The desire of the tank designer, therefore, is always to secure the greatest possible speed over all types of terrain.

Foreign tank designers have not given speed as high a value as we have. This probably has been due to the fact that only engines of relatively lower horsepower have been available. Regardless of the reason, it is a fact that most European tanks, including German, have about one-half the horsepower-to-weight ratio of the corresponding American vehicles. For this reason, it may be expected that American tanks will travel much faster than foreign vehicles and will be more difficult to put out of action.

The power train and the running gear give the tank mobility. The units must be light because the payload on this vehicle is crew, armor, guns, and ammunition. They must be readily accessible for quick adjustment, repair, or replacement, as these units have the greatest effect on mechanical reliability.

Prior to August, 1940, the Ordnance Department had not undertaken the design and manufacture of a heavy tank due to lack of funds; such a project would have consumed too large a proportion of the research moneys then available. In August, 1940, however, the Ordnance Department received its large appropriation from the Congress and was therefore able to afford the luxury of designing and manufacturing supertanks. It was in a position to undertake such a design since a large percentage of the tank components which had been under intensive development during the past twenty years by the Ordance Department could be utilized in the construction of a large supertank by strengthening and enlarging these components as required for use with a large and heavy vehicle.

A number of difficult engineering problems have arisen in connection with the design of this tank. One such problem has been the development of a suitable transmission which would be able to handle the powerful engine used in the vehicle. To this end, the engineering talent of the automotive industry was called into consultation and was asked to coöperate with us. As a result, three different types of transmissions were designed and placed under manufacture. The transmission found by test to be best suited for the strenuous and exacting requirements of the heavy tank will be selected for production.

While there are heavy and supertanks in existence in Europe, there is no vehicle known to exist which would approach the American 60-ton supertank in regard to power of weapons carried and horsepower of engine used to drive it at high speeds across country. The Ordnance Department has maintained in this vehicle the same high horsepower-weight ratio employed in the designs of its light and medium tanks so that the cross-country mobility of the vehicle should in every way duplicate that of the smaller vehicles developed previously.

The two major disadvantages of a super tank are its high cost and its heavy weight with the accompanying difficulty of crossing rivers on temporary bridges. The advantages accruing to the heavy tank are its superior gun power, its heavier armor which makes it invulnerable to all but the most powerful antitank guns, and its great crushing power. In some of the important tank battles of the present war, the Germans have used supertanks mainly from the Skoda arsenal at Czechoslovakia as a spearhead of the attack.

The trend of development in tanks at the present time is continuously toward the use of more heavily armored vehicles. As previously stated, there is a distinct limit to the armor plate which can be applied to a given design of tank chassis. It becomes necessary, therefore, if the armor is to be increased materially, to design new vehicles with sufficient horsepower which have all parts proportioned to carry the heavy loads imposed by the thicker armor plate. The supertank which has just been completed by the Ordnance Department is a forerunner of a new line of heavily armored tanks and represents, it is believed, the most powerful tank which has been built in the world up to this time.

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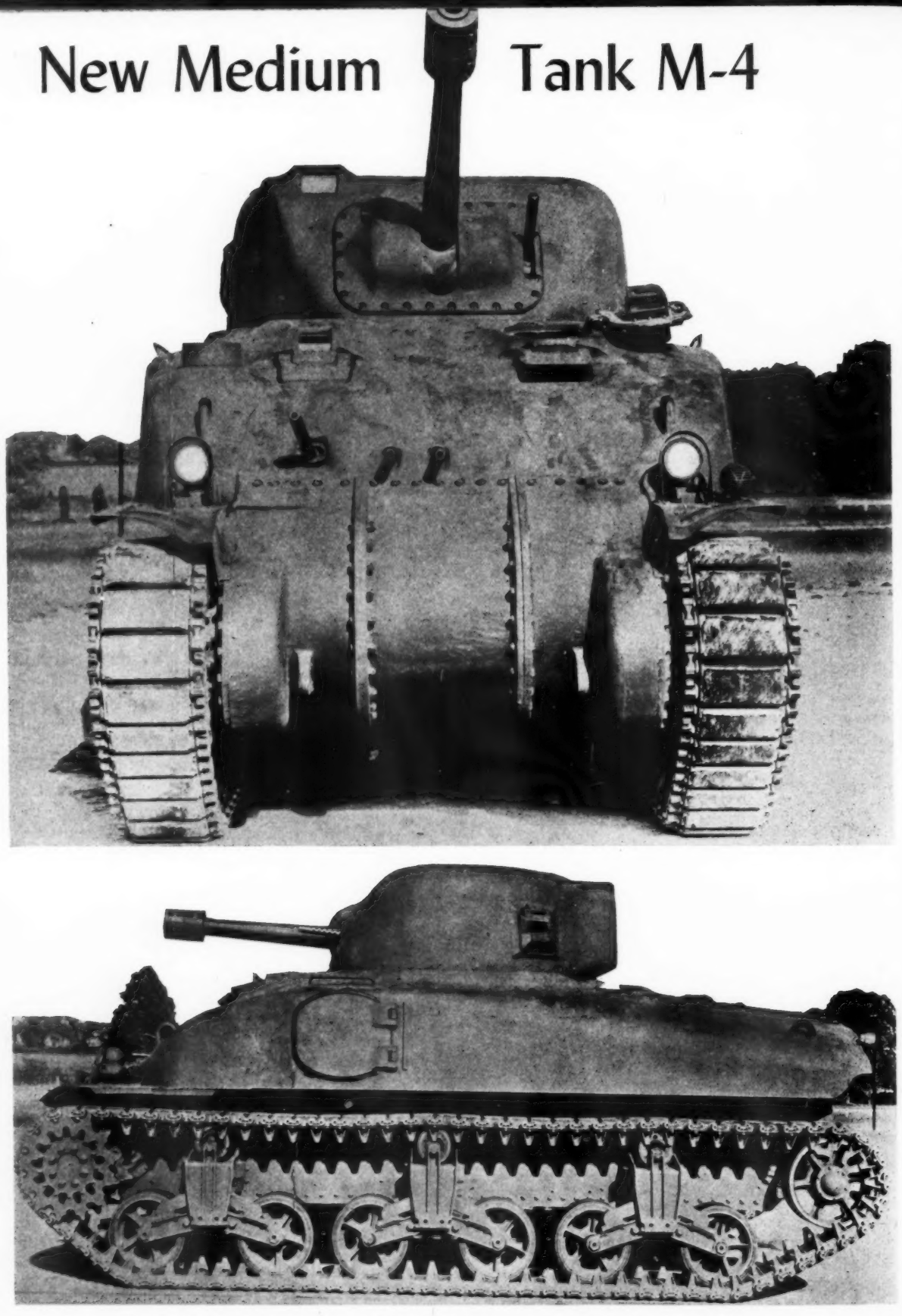
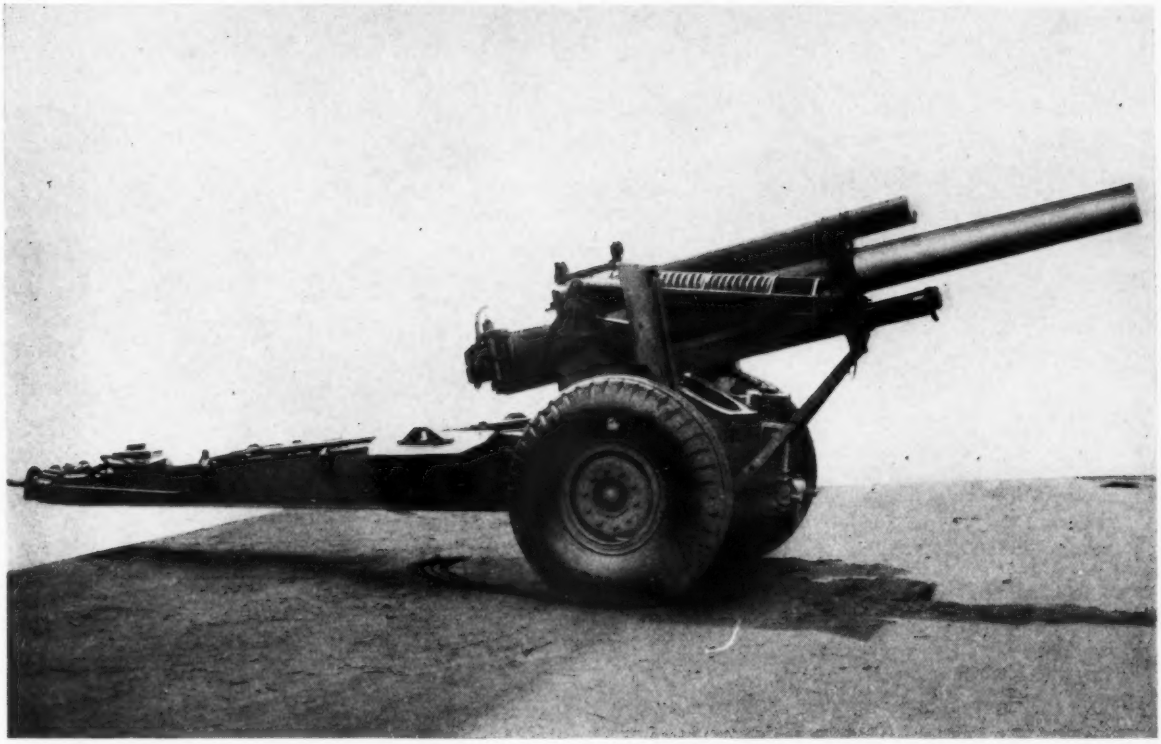
". . . better a faulty plan which shows boldness and decision than a perfect plan enmeshed in uncertainty."–*Truppenfuhrung.*

New Medium Tank M-4



Completely streamlined and armed with a 75-mm. cannon and a battery of machine guns.

New Field Weapons



Two new field artillery weapons recently have been standardized. The improved 155-mm. howitzer, shown above in travel position, will eventually replace the French-type Schneider 155-mm. howitzer now in use. The 4.5-inch gun, shown below in travel position, is suitable for corps artillery and antitank missions. The same type carriage is used for gun and howitzer.

Courtesy, *Army Ordnance* Magazine.

New Mobile Weapons

One of the Army's latest mechanized weapons, the "swamp buggy," above, mounting a 37-mm. gun has proved itself an effective antitank unit; its oversize tires enable it to navigate marshy terrain. Another new weapon is the 240-mm. howitzer which breaks into two loads for fast transport. The barrel is shown below being towed at high speed.

Courtesy, *Army Ordnance* Magazine.

Super-Machine Guns*

*By J. B. Nealey***

THE fact that new weapons are continually being devised necessitates the development of counter weapons if they are to be effectively resisted and overcome. Down through history this ever-recurring cycle is the warp and woof of the pattern of warfare. One of the latest figures in the pattern, woven since World War I, is made up of military planes and antiaircraft guns. All-important among these latter are light, fast-firing guns that fill the gap between the machine gun and the 75-mm. gun, typified by the famous 37- and 40-mm. guns—in reality super machine guns.

These two guns, which are so close together in caliber and mission, are entirely different in mechanical details, and were developed entirely independently of each other. As soon as the need for antiaircraft guns was indicated by the introduction of airplane warfare, the Ordnance Department of the United States Army started designing, building and testing. Using the Browning machine gun mechanism as a basis, the 37-mm. gun was finally created and adopted. The 40-mm. gun had its inception in Europe and was developed in Sweden, and later was adopted by Great Britain and many European powers. While the relative merits of the two guns are controversial, each has a distinct field of use.

In America the versatility of the 37-mm. gun soon demonstrated itself. Four types of mount were developed and four different missions were assigned to it. In addition to antiaircraft, it is used for aircraft, antitank and tank functions. Actually it is four different guns with the same bore. The 40-mm. gun has only one mission—antiaircraft, although in an emergency the muzzle can be lowered for antitank use.

With a sliding wedge or drop block type of breech-block, actuated by a trip on the recoil mechanism, the 37-mm. gun has been made fully automatic. A slight change only is necessary to convert it into a semi-automatic gun. As an automatic machine gun, its rate of fire is 120 to 140 rounds per minute. Ammunition is fed in 10-round clips and as high as 40 rounds can be fired continuously before cooling with water circulated through the bore.

Monobloc Gun Tube

The gun tube is of the monobloc type, that is, cast in a single piece with neither hoops nor jackets. Centrifugal casting, a method by which small and medium caliber cannon are cast, together with cold working and stronger alloy steels, are United States Ordnance developments of a most revolutionary character. Through these three developments alone the United States today leads the world, not only in the science of gun making but in the mass production methods of gun manufacture. In addition to increased strength due to better

Firing from clips of ten shells each, this 37-mm. antiaircraft gun can send a stream of projectiles aloft at a rate of 120 per minute. It is used against planes or tanks.

*—Courtesy, *American Rifleman*.

**Advisory Specialist, Ordnance Department, U. S. A.

steel alloys and centrifugal casting, cold working so raises the elastic limit of the steel in the gun tube as to almost double its strength.

All this obsoletes the time-honored built-up section of separately forged jackets and hoops shrunk onto the gun tubes, and obsoletes the replaceable liner with its rifling grooves. In its place is this new, light, one-piece tube—the monobloc gun with the rifling cut directly into it. Replacing barrels is faster than relining old ones; therefore, the 37-mm. gun is lighter, stronger, has a higher rate of fire, greater mobility, and will hurl a heavier projectile to greater distances than any other gun of its caliber.

The tube is screwed into the breech-ring which contains a recess for the operation of the breech block. A hydro-spring type of recoil system is employed and the recoil piston rod is attached to the breech ring. The recoil system includes the recoil mechanism, the recuperator or counter-recoil mechanism and the buffer mechanism. The tube itself is machined to provide bearings for attachment and alignment on the sleigh.

The gun, which weighs only 6,100 pounds, carriage and all, will throw a 1.34-pound high explosive shell for a horizontal range of 9,300 yards or vertically as far as 6,400 yards. The shells are provided with a very sensitive detonating nose and will explode on contact with the lightest airplane fabric where former shells would pass harmlessly through a wing, fuselage or non-vital part. This new shell, detonating as it does on contact, is very destructive at any point. Furthermore, the detonation is delayed for a fractional part of a second so that the shell will pass into the wing or plane before the actual detonation takes place. The shell will penetrate any armor plate protection the plane may carry. Interspersed with the high explosive are tracer shells so that the gunners can follow the trajectory and ascertain the closeness of their fire by eye. The shell has a separate time fuse which explodes and destroys it in the air after so many seconds flight and after it has passed its effective range. This prevents it from exerting its destructive force on friendly troops or civilians when it drops to earth.

37-MM. ANTIAIRCRAFT CARRIAGE

The Ordnance Department also developed an entirely new carriage which gives this antiaircraft all-round traverse and a high angle of elevation. Equilibrators were added to counterweight the throwing of the center of gravity forward to permit of high elevation. The research section of the Ordnance Department has also developed improved methods of welding that have made possible the substitution of light welded members for the heavy cast parts of the carriage. This makes the carriages much lighter and more stable. With rubber tires and ball bearings these guns can be towed at high speed. Counter-balancing springs permit the lowering of the carriage to the ground, from the traveling position to firing position, in a quarter of a minute.

The gun is laid by two independent mechanisms, one for traversing and the other for elevating, operated by

Left: **Another view of the Army's fast-firing 37-mm. antiaircraft gun. Towed by truck, it can be moved into position and operated with minimum time loss.**

Below: **One of the first of the new Bofors to come off assembly lines. This 40-mm. gun, developed first in Sweden, is now standard in British, United States armies.**

two gunners. They sit in light seats suspended from the gun so that their position in relation to the gun and two telescope sights remain unchanged regardless of the movements of the gun itself during firing. A battery of these guns can also be laid and fired automatically by the mechanical computer and the firing data transmission system.

Anticipating a distant airplane traveling at 3, 4 or 5 miles per minute and getting explosive shell up there to meet it is the function of the mechanical computer, a metal box with a couple of hand wheels and telescopes for following the plane in flight. It solves the various firing problems that the battery commander and his detail once solved laboriously by mathematics and slowly phoned to the guns. It solves them instantly and continuously with the element of time added, so that the projectiles arrive at a predetermined point simultaneously with the arrival of the plane.

The Bofors 40-mm. Gun

The 40-mm. gun was given the acid test by the United States Ordnance Department, adopted and put into production last year. While its carriage functions quite like that of the American 37-mm. gun, its construction details are entirely different. Aircraft can be tracked with reflecting sights for "point blank" fire or the director can be used.

The 40-mm. gun has approximately the same rate of fire as the 37-mm. It throws a 2.205-pound high explosive shell. Gun and carriage weigh but 4,300 pounds when traveling. A prominent feature of this gun is the bell mouth flash hider on the barrel. The tracer shell, the chief projectile used with this gun, contains a bursting charge, tracer compound, nose fuse and base fuse. Firing the gun lights the base fuse, which ignites the tracer composition about 55 yards from the muzzle. This traces the trajectory as a red point and a burst of several shells gives the trajectory the appearance of a red beam. Thus the gunners can see exactly where the shells are going. The bursting charge is detonated when the super-sensitive nose fuse hits the plane, or, if it misses the target it is detonated when the tracer composition burns out.

37-mm. Aircraft Gun

As an aircraft weapon the 37-mm. gun is located in the airplane on a "fixed" mount. To aim it the pilot points his plane at the enemy craft and fires it by remote control. This type is fully automatic. Ammunition is fed in clips loaded into a link belt which is folded into a magazine. There is also a feeder for 5-round clips that fits into the ammunition tray. High explosive shells with a super-sensitive detonating nose and self destructive powers are used.

37-mm. Antitank Gun

As an antitank gun the 37-mm. weapon has a much lighter carriage than the antiaircraft gun, since high elevation and wide traverse are not necessary for this mission. Pneumatic tires, split trail, frictionless bearings and light welded structure are its most obvious features. The gun weight, carriage and all, is less than 1,000 pounds and one man can operate it although its normal crew is six. This is a mobile infantry weapon of great firepower and with a projectile weighing almost 2 pounds, it has a range of around 12,000 yards and a mechanical rate of fire of approximately 25 rounds per minute. The breach mechanism is manually operated. It is normally drawn by a half-ton truck.

As high explosive shell will not penetrate thick armor plate, armor-piercing shell is used. While an interior shell burst might accomplish more destruction, the ricocheting of an armor-piercing shell around the inside of a tank is quite adequate.

Main armament of Uncle Sam's light tanks is the 37-mm. gun visible in the turrets of these "iron horses." Each tank carries also five .30 caliber machine guns, one suitable for antiaircraft, and a Thompson sub-machine gun.

Armored Reconnaissance

By Lieutenant Colonel H. H. D. Heiberg, 1st Armored Division

THE Reconnaissance Battalion of an Armored Division is the division commander's independent ground reconnaissance unit. In the performance of its mission, the battalion operates much as do other similar units, namely the reconnaissance squadron of the Cavalry division, and the scout car squadrons of the Corps Reconnaissance Regiments.

From the recent extended maneuvers in which this command participated I have selected a typical example of one type of reconnaissance performed by the Armored Reconnaissance Battalion and will discuss it briefly.

FIRST ARMY vs. I CORPS REINFORCED BY 1ST ARMORED DIVISION

November 3-6, inclusive, 1941

On 3 November 1941 the Blue First Army was known to be concentrating in the general area CHERAW, S. C.–ABERDENE, N. C.–MT. GILEAD, N. C., east of the PEE DEE RIVER.

The 1st Armored Division, recently arrived by rail and marching from the LOUISIANA maneuver area, was bivouacked to the south of ROCK HILL. The Red I Corps, to which the division was attached, was concentrated in the WAXHAW-LANCASTER area.

It was expected that hostilities would commence early 4 November. The Red mission was to hold the Blue force east of the CATAWBA RIVER. The Red Commander planned to advance his I Corps rapidly upon the outbreak of hostilities and seize the commanding ground, MONROE-PAGELAND, holding the Armored Division centrally until the situation developed sufficiently to offer an opportunity for the employment of its offensive strength.

During the evening of 3 November the division moved into concealed bivouacs just west of the CATAWBA. As radio silence was in effect it was necessary to report our new location by messenger. Having a hunch that the 81st Reconnaissance Battalion would be in for a little action before the division became involved, I set out for the Division Command Post to report our location. Sure enough, General Magruder wanted to see me. The battalion was to be released when hostilities opened in the morning. We were to move out on either flank of the I Corps, continuing reconnaissance beyond their advance as far as the PEE DEE RIVER; to gain and maintain contact with the Blue forces west of the PEE DEE RIVER reporting strength, composition, and movement. We were to locate suitable assembly areas on both flanks from which the Division might attack. In addition, with our organic tanks (only ten, newly issued in Louisiana) we were to represent large numbers of tanks on both flanks, confusing the enemy as to the location and intentions of the Armored Division. Initially the 12th Observation Squadron of the 1st Armored Division was to work directly with the reconnaissance battalion. For final conformation and instructions I had to go to I Corps Headquarters which added sixty miles to my wanderings. There I found that we could not move until ordered, that the time of movement was not yet known but probably would not be prior to daylight.

Returning to the Battalion Command Post at about 2:30 AM, 4 November, I had the company commanders routed out of their warm beds for orders. The assignment of areas for reconnaissance was as shown on Map A (omitted). A platoon of three (3) tanks was attached to "A" Company, which was to operate on the north flank of the I Corps. As it was expected that this company would be out of physical contact with the battalion, ration and extra fuel trucks were given it. The rest of the tank company, ration and fuel trucks moved initially with battalion headquarters.

Word came to move out at 6:00 AM, 4 November and by 6:30 the reconnaissance companies had cleared bivouac, battalion headquarters following at 6:40 AM.

The companies moved rapidly over routes indicated to their areas before fanning out to perform reconnaissance.

At 9:50 AM "D" Company, Captain LeMoyne commanding, reported first contact with Blue troops near McBee. Company "B," Captain Surles commanding, next reported two battalions of 71st Infantry moving on PAGELAND via HIGHWAY 9 at 10:32, and ten minutes later "A" Company, Captain Quirk commanding, radioed that 101st Cavalry scout cars were operating around MARSHVILLE. All three reconnaissance companies had gained contact . . . but the tough part of the job was still ahead.

To continue their movement in the direction of the enemy, the platoons must now resort to "side slipping," that is, using little known dirt roads and trails, and occasionally ducking cross country, but always keeping close enough to the main highways to observe enemy movements there. This was found to be the most effective way of avoiding antitank guns throughout the maneuvers since heavy artillery vehicles seldom seemed to use poor roads, and even truck loads of infantry usually pick fairly good routes to follow.

By the use of aerial photos, a reconnaissance platoon can often find a route good enough for scout cars that does not appear on the largest scale maps. In this way the reconnaissance platoon may at times advance many

miles into enemy lines without its presence being disclosed.

Company headquarters moved well into their areas using back roads and trails and by early afternoon had established their Command Posts in concealment; "A" Company near MARSHVILLE, "B" Company near CHESTERFIELD, and "D" Company near PATRICK.

Patrols of scout cars, bantams and motorcycles worked their way throughout the area seeking cover at the first contact, and from concealment, observing troops in bivouac and on the move. From these patrols throughout the day came a steady stream of radio reports which were relayed by the companies to battalion headquarters.

The 12th Observation Squadron was working directly with the reconnaissance companies in reporting movements across and in the vicinity of the PEE DEE RIVER as the following two messages received by battalion headquarters illustrate.

No. 19—"75 trucks with 26 AT guns 37 and 75-mm. moving N 20 MPH on Hy 52 head of column 8 mi N SOCIETY HILL 10:15 A 20 trucks moving W 5 MPH on Hy 77 4 mi E CHERAW. Air report 10:40 A 8 S/C 4 trucks 1 large trailer all Blue in Bivouac 5 mi N.E. McBEE 11:08 A. 'D' Company 11:15 A."

No. 25—"From observation plane quote: Large column of enemy vehicles est 5 mi long crossing PEE DEE RIVER on Hy 74 mostly trucks some scout cars est 8 AT guns have just crossed river also enemy column est at 50 vehicles consisting of trucks and few scout cars moving SW from LILESVILLE 11:10 A 'A' Co. 11:38 A."

Other typical messages:

No. 29—"One company 174th Inf knocked out 2 mi SW PAGELAND. Continuing mission. 'B' Co. 12:15 P."

No. 30—"Large blue force strength undetermined concentrated 8 miles NE WINGATE. Destroyed enemy scout car 101st Cav vicinity FAIRVIEW on Hy 151—'A' Co. 12:51 P."

No. 38—"Blue 104th Engr. 71st Inf and artillery Div near PAGELAND. 'B' Co. 1:56 P."

No. 39—"182d Inf at FOUNTAIN HILL. Hy 74 clear to MARSHVILLE. 'A' Co. 2:12 P."

No. 43—"1 Co 115th Inf at RUBY 1:00 P. Blue troops numerous between CHESTERFIELD AND MERVEN at 2:40 P. 'B' Co. 2:50 P."

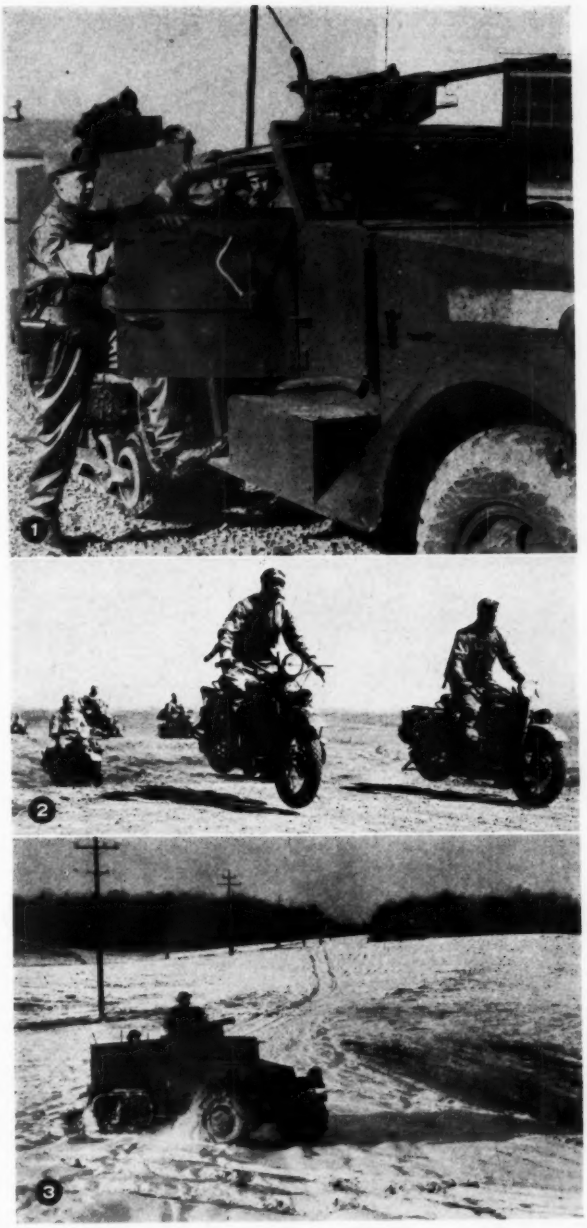
No. 45—"Third platoon wiped out except peep and mortar at CR 151 and 27. 101 Cav. Rcn. active vicinity MIDLAND. 'A' Co. 3:16 P."

No. 47—"104 Blue Cav. bivouacked on Hy 85 one mi N Hy 1 x x x 'D' Co. 2:53 P."

No. 56—"110th Inf Mq. 3 mi S MARSHVILLE also elements of 156 FA x x x 'B' Co. 5:30 P."

No. 62—"Area south and east of McBEE suitable for assembly area. 'D' Co. 7:35 P."

No. 74—"CP unchanged. Blue forces holding bridge two mi W PEACHLAND on Hy 74. Bn Blue Inf in bivouac S CR HAMILTON. 'A' Co. 10:10 P."



1—Lieutenant Colonel H. H. D. Heiberg, commander of the 81st Reconnaissance Battalion, 1st Armored Division. 2—Dashing and daring as the horse-mounted cavalryman, the cyclist is one of the most envied and important of all the individual armored division soldiers. 3—Regardless of terrain and weather the vehicles and men of an armored reconnaissance battalion perform their missions.

These messages are typical of the character of information that was coming in. Numbers are the battalion message centers numbers assigned incoming messages over the battalion command net alone. There were nearly 100 such messages. Enemy information was sent

in clear and information on friendly troops was generally sent separately in a single code.

The larger units were identified. Reports continued to come in through the night and the next morning until by Noon 5 November every major combat unit of the Blue army had been identified.

Battalion headquarters with its ponderous tail, crossed the LYNCHES RIVER about half an hour behind "B" Company, bound for PAGELAND which seemed a likely place to establish a Command Post. "B" Company's report that the 71st Infantry was approaching PAGELAND drove us to cover about half a mile west of the village. Motorcycle intelligence scouts sent forward to watch these troops reported that they had deployed astride the road and were moving in one direction. Having no desire to become involved in a fight at this time, battalion headquarters and trains, sandwiched between the two remaining tank platoons, began doing a little sideslipping on their own. Using air photos we worked our way over obscure trails into the heavily wooded, rough country between PAGELAND-JAMESTOWN and the LYNCHES RIVER. Feeling reasonably secure for the time being we began coiling our long column into a thick patch of woods when an excited lieutenant came up from the tail of the column in a bantam and told us the rear guard was being fired upon by antitank guns and the tail of the column was under artillery fire. Moving east again we ran into strong opposition on Highway 151 and lost a half-track. With the rear guard holding off the pursuing tank destroyer element we doubled back and then moved cross country into thick woods on the side of a hill. This position we quickly outposted with concealed tanks and machine guns while the rear guard, consisting of a maintenance half-track and two tanks, diverted the enemy over another route and rejoined after eluding him.

A troop of the Horse Squadron of the 102nd Cavalry gave us a start shortly after this when it suddenly appeared moving west from Hy 151 with the leading

Of all units of the fast-moving armored division, the reconnaissance battalion covers the roughest, newest terrain.

platoon deployed astride the road adjacent to one position. Intent on the terrain to their front they missed our outposts by yards. Seeing that they were friendly troops, I stopped a nearby squad leader, found that they were withdrawing across the LYNCHES, told him what we knew of the situation in the vicinity and he galloped off to report.

A fusillade of shots a few minutes later indicated that our friends the enemy were still in the vicinity, but the firing soon subsided and the cavalry disappeared.

It was now late afternoon and our perigrinations had interfered considerably with our reporting to division the mass of information that was coming in from the reconnaissance companies. We were having difficulty in communicating by radio with the division so on advice from a nearby farmer that the nearest telephone was about a mile down Highway 151, the S-2 made a perilous cross country trip in a bantam to a nearby patch of woods and sneaked across the highway on foot between hostile detachments and got our report in to division by telephone.

At dark "B" and "D" Companies were instructed to send in guides for fuel and ration trucks. "B" Company's guide, Lieutenant Karcher in a bantam, arrived about 8:30 PM with a hair-raising tale of his exploits of eluding enemy capture, including joining and moving with a hostile blacked-out column for part of the way. "D" Company's guide never arrived.

Based on information gathered by the battalion, the division moved under cover of darkness to the south flank preparatory to an attack from the line PATRICK-McBEE on PAGELAND-MT. CORGHAN the morning of 5 November.

The 81st Reconnaissance Battalion, less "A" and "B" Companies which were to remain in contact, was ordered to withdraw across the LYNCHES RIVER to the vicinity of KERSHAW prepared for further action.

Moving south on Highway 151, blacked-out, in the rain, battalion reached the vicinity of the BETHUNE BRIDGE, west of McBEE (previously reported destroyed by enemy) at dawn 5 November, where we went into concealed bivouac awaiting further orders. We had been unable to cross the LYNCHES further north because all crossings had been destroyed by friendly infantry shortly after dark 4 November.

"D" Company in withdrawing from PAGELAND had encountered antitank dispositions of the 104 Cavalry and 176 Field Artillery in the vicinity of McBEE and reported on these locations while working around to join battalion headquarters.

While the battalion was still moving into concealment, the 6th Infantry (Armored) started advancing on McBEE, crossing the LYNCHES on the BETHUNE BRIDGE which had been repaired by the 16th Engineers (Armored) during the night.

The leading battalion commander of the 6th Infantry was contacted and informed of the situation at McBEE as we knew it. Next a reconnaissance officer of the 27th Field Artillery (Armored) was flagged down and told of the McBEE dispositions. And so as the 6th Infantry moved in to secure the assembly position each unit commander was contacted and given the latest information.

"A" and "B" Companies continued their reconnaissance activities to the north reporting movements in their assigned areas. In addition "A" Company began operating their attached tank platoon with the object of creating the impression of a large tank force on that flank. So successful was Captain Quirk in this deception that he had the enemy thinking there was a tank regiment there. I quote from an umpire report:

"I must commend Captain Quirk on his ability to maneuver his unit, causing the enemy to become confused as to the size of the force opposing. With 2 tanks he had the enemy believing there was a whole regiment. The enemy did not know our strength until 4:30 PM. The enemy umpire had the captain move his column through their lines to give their men a chance to see what had been holding them. Units delayed: 104th Infantry, 182d Infantry, 181st Infantry, 102nd Field Artillery."

This force consisted of "A" Company Headquarters and 4th Platoon, a squad of the reconnaissance platoon of the 16th Engineers and two tanks from "C" Company.

"D" Company, which had been filtering back during the day, was charged with the close in security of Division Headquarters (which set up on the east bank of the LYNCHES near the BETHUNE BRIDGE) because activity of horse patrols of the 104th Cavalry along the river had made this protection necessary. However, we eventually got them fed and serviced by vehicle, squad or platoon.

The movement of the division to the south had been so delayed by friendly demolitions on the south flank that the assembly for the attack was not completed until late the afternoon of 5 November. Reports from "A" and "B" Companies indicated that hostile units were beginning to move southward to meet the mechanized threat building up on that flank.

Having lost the element of surprise, General Magruder decided to reverse his field under cover of darkness and launch his division from the north flank the morning of 6 November.

For deception the 6th Infantry was left in position on the south flank with the remains of our tank company, 6 tanks, to run around through the assembly area all night making a noise like two light and one medium tank regiments.

At dark we again moved out, blacked-out, in the rain, this time to the north on the west bank of the LYNCHES RIVER.

"D" Company, followed by Battalion Headquarters covering the advance of the division.

Dripping wet, we reached the new assembly area before dawn where the long column of the Division

began to coil. The movement had been made without contact or discovery. The Division was ready to strike by 8:30 AM 6 November. And so the problem terminated.

The 81st Reconnaissance Battalion had existed for two days surrounded by hostile troops and sustained vehicle losses of about twenty-five per cent. By harassing action it had inflicted greater losses upon the enemy. There is no doubt that our losses could have been reduced materially had the various patrol leaders resisted the temptation of attacking isolated and unsuspecting hostile troops, particularly on 4 November where no deception or diversion was desired. This is a problem that confronts most reconnaissance commanders. It is believed, however, that in actual combat these leaders will not be so eager to engage forces many times their size.

Despite these heavy losses the battalion was able to continue its reconnaissance and maintain a steady flow of information throughout the period. It was this exercise that earned for the 81st the title of "Phantom Battalion."

★ ★ ★

Tank Destroyer Command

THE War Department has announced the organization of a new Army combat force—the *Tank Destroyer Command*—with Headquarters at Camp Hood, near Killeen, Texas. This command is part of the Army Ground Forces under Lieutenant General Lesley J. McNair. Camp Hood will be commanded by Brigadier General Andrew D. Bruce who will coördinate the instruction of tank destroyer units, test weapons and tactical doctrine, and develope technique.

The Tank Destroyer Command received its initial impulse from old Antitank Battalions and an experimental Tank Destroyer Battalion, last August. The second step in its development came in December when a Tactical and Firing Center was set up temporarily at Fort George G. Meade, Maryland. A number of Tank Destroyer Battalions are now completely organized . . . and they are ready to: *"Find 'em, Fight 'em and Finish 'em!"*

Photographic Unit*

WHEN the 2d Cavalry Division moves into the field, it will be fully equipped in terms of modern warfare, even to a complete photographic unit. A unit of the 162d Signal Corps Photographic Company, temporarily attached for experimental purposes during Louisiana maneuvers, has been permanently attached to the division since November, 1941 and has now attained the ability to function efficiently as a fully rounded Signal Corps outfit.

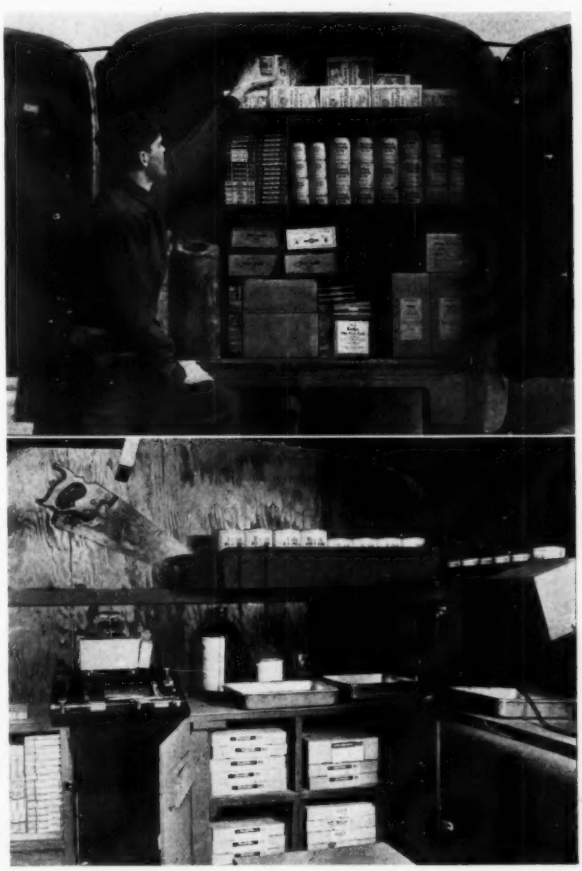
The 162d unit is an amazing example of determined self-sufficiency. Having comparatively little precedent in the way of field experience to guide it, this new Signal Corps outfit—one of several first organized in June, 1941—weathered the war games like a veteran, literally pulling itself up by the bootstraps to a permanent niche in cavalry operations. Living up to cavalry requirements of swift mobility in the field is not easy for other troops. When delicate laboratory equipment is involved, the problem assumes special proportions.

The difficulties pertaining to field operations were met with a will that inspires admiration. Map problems and rigorous field training taught photographic personnel that "shooting" for the cavalry entails work equalling the average day of a rifle troop, with long hours stretching far into the night as well. However, operating with delicate equipment under a variety of difficulties has now become an accustomed part of the day's work. When maneuvers were over, the unit's experimental period as such was ended. Nevertheless even more intensive work was ahead before the cameramen could enjoy a breathing spell—work which has repeatedly justified the outfit's existence.

The 162d Photographic unit, its apprenticeship with the 2d Cavalry Division completed, arrived at Camp Funston, November 5, 1941 with two truckloads of assorted equipment and a determination to "make good." On November 6th they were shooting pictures. Their first darkroom was a black-out tent set up in an office at Division Headquarters where negatives could be developed. The makeshift arrangement was not suitable for printing, however, and this was done in the Cavalry School darkroom at night until better facilities were arranged at Division Headquarters.

A couple of weeks passed in this manner until they were assigned a building vacated by the Division Finance Office which had moved to other quarters. Then the work really started. The building was not equipped for a studio in any sense of the word. Undaunted, the camera unit, which is composed of a former cavalry lieutenant, a sergeant and five PFC's, set to work. Out came excess fixtures and partitions. In went two darkrooms for developing and printing, a storage room, an office, and a portrait studio. Shelves, cupboards, developer sink and every stick of furniture were made by hand. Some of it could hardly be called a joy to the eye—but it serves the purpose. In this self-made workshop, the unit carries on, poised and ready for instant action when the Division moves into the field. Of course it hasn't been so easy as all that. "Poised and ready for instant action" in the cavalry means exactly what the words imply.

A made-to-order mobile darkroom similar to those used by the Air Corps had been promised the Unit. Time passed and none materialized. The handicap of operating from a field base where all laboratory darkroom work must be done had proved a crippling waste



Top: **Everything needed for speed and efficiency in the field is to be found aboard the photographer's mobile laboratory, including the contents of this auxiliary supply closet. Note the "blacked-out" door windows.**

Bottom: **Compactness is the keynote of this portable darkroom built into a 1½-ton panel truck. Entry is from the driver's seat. The partition separates laboratory from auxiliary supply closet in rear. Compartment appears roomy enough but work must be done in sitting position.**

*By G-2 Section, 2d Cavalry Division.

Poised for action: Personnel of the 2d Cavalry Division's 162d Photographic Company unit takes its own picture. Obviously "shooting" is not all done with a camera. Thompson sub-machine guns and .45 revolvers share honors with Speed Graphic cameras as the 162d lines up in front of its darkroom-on-wheels.

of time and material during maneuvers. If the photo unit, expected to hold its own in a cavalry division, something had to be done. And it *was* done.

The ingenuity of this outfit in furnishing its portable laboratory was further demonstrated by a fourteen gallon gasoline tank salvaged from the motor pool and fitted snugly under a darkroom table to serve the purpose of a water storage tank. Since the water should be hot for some needs, the lieutenant in charge contrived a "heater" with the help of an old kerosene lantern whose missing chimney was replaced by an empty developer can. When lighted and placed under the tank, it serves its purpose with surprising efficiency. As the lieutenant put it, "It's a crazy looking thing. But, dammit—it works!"

An enlarger, contact printer, developing tanks and processing trays can be fitted compactly into the mobile darkroom along with chemicals, film and paper supplies. The cavalry photographers are equipped with three Speed Graphic (4" x 5") cameras. One standard type of non-curling film is used to assure ease of use and processing.

On the back side of a neatly constructed partition is additional space accessible from the truck's rear doors. In here are found shelves for flash bulbs, additional film, auxiliary gasoline supply and pioneer tools.

When the unit moves into the field it is prepared to carry with it a 12 volt gasoline motor which generates the power necessary to supply illumination for developing and printing. Three outlets, wired to carry 110 volts of current for safe-lights, are provided in the darkroom. If for some reason power is not available, ordinarily contact prints can be made with sunlight. Enlargements, however, cannot be printed without the aid of electrical illumination by the present set-up.

The photographic unit works in close harmony with the Public Relations section while in garrison. But picture shooting activity is not confined to publicity shots alone. Recently the cameramen were of great assistance in supplementing a medical report which called for pictures of dispenseries, medical supplies and equipment. The outfit is often augmented by a moving picture crew which is equipped with sound recording apparatus. While in the field countless pictures are taken which are invaluable as records—identification of prisoners, examples of demolition activities, occupation procedure and often actual combat. The photographer may be called on at any time to shoot pictures for any one of the cavalry's many departments.

Color pictures as well as black and white are frequently used. With the aid of a "color-blind" assistant, they are especially useful in spotting enemy fortifications protected by camouflage. The telescopic lens also comes into play here. A novel and expensive device which is now past the experimental stage is the "blackout" flash bulb. Using an infra-red filter and film, the

photographer can take very satisfactory close-up shots after dark with the aid of an infra-red flash bulb whose explosion can barely be detected by the human eye. A special infra-red paint and filament give the bulb its invisibility.

The activities of the photographic units are limited to ground work. They move with the troops. However, when additional copies of aerial photographs are needed —as they often are—the photo unit is always there and can do the job. Its skilled men and its record file are available when the occasion arises. Four contact prints of each negative are always made for record, in addition to numerous enlargements which serve the needs of a fighting force. A complete record file of pictures and negatives is kept by the unit clerk.

During field operations the 162d Photographic unit will be attached to Division Headquarters as a part of G-2 section. In addition to the portable darkroom truck, it will employ a seven passenger carry-all which carries the personal equipment of the unit and all personnel not transported by the truck.

Photographers will no doubt be called upon to get pictures behind enemy lines. This calls for constant training in scouting and patrol work. Each man is armed with a .45 revolver and has been trained to operate a Thompson sub-machine gun—one to each truck of the unit. *He is first a soldier—then a photographer.* He must be able to follow troops closely in an attack, making use of his own fire power when necessary to secure needed photographs. Working as a part of the Intelligence section, his duties are clearly defined—to worm his way ahead of the division, get needed information, record it and return safely—a scout with a camera. All this is in addition of course to routine behind-the-lines work as recorder and publicity cameraman.

In a recent C. P. problem the cavalry photographers demonstrated not only speed of movement, but unusual celerity in producing finished prints for immediate use by division staff officers to verify and augment operations with maps. To test the possibilities of the unit as an additional agent to a reconnaissance mission, the photographers were placed in the forward echelon, while the dark room remained in the rear echelon. With the aid of motorcycle messengers it was found possible to take, develop, print and have pictures at the spot needed in 45 minutes.

Exposed negatives were rushed from the front lines to the rear echelon dark room, a distance of six miles, where double strength solutions of developer and acid hypo-fixing bath aided in rapid development and fixing, then rushed back to the front. The enlarged prints thus made were good for three days, at the end of which time they began to stain and fade because the negatives were not washed until after the finished prints were made. However, the negatives, immediately after the first printing, were washed in a small creek chosen for that purpose beforehand.

In the meantime the "rush" prints had served their purpose and permanent enlargements had been made for possible further needs. A complete reconnaissance photographic report was then in the files and no extensive written report was necessary. All the work was done with illumination furnished from a six-volt storage battery, doing away with the immediate necessity of a power line or gasoline driven power generator.

At present the photographic personnel is undergoing rigorous physical training to keep them in trim for front line duty. Long hikes each week, combined with field training in chemical warfare defense measures, machine gun and pistol work, and coverage from aircraft attack is adding to their qualifications as soldiers. They have to be tough. A cameraman can get caught in a jam as easily as the next fellow, and with valuable photographic information on his person it is of special importance that he know how to get himself out of it.

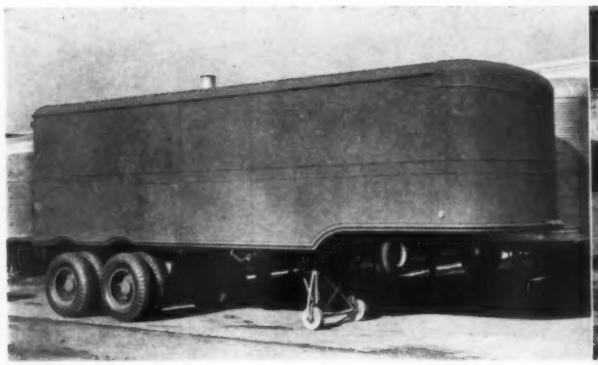
During the C. P. problem mentioned the camerman worked with the regular burden of full field equipment in addition to photographic paraphernalia at all times. The art of camouflage was given special attention, with grass and dead leaves serving to blend vehicles into the early spring terrain. The photographer has learned to adapt himself quickly and efficiently to the particular requirements of individual Division units—at any time, in any place. He has taken a delicate and highly progressive art and learned to apply its many possibilities to the problems of a modern army. The artist-photographer, through necessity and the desire to serve ably wherever he may be needed, has become the soldier-photographer. The results of his work may be seen in the country's newspapers and magazines, on the newsreel screens, and—by the selected personnel who are actively engaged in directing the efforts of the armed forces—on the field desks at the front. There he has spied out the enemy, recorded his position and his strength, his pattern and change of strategy, and furnished the staff officers with a clear picture of operations in a fast and efficient manner. The camera makes no errors.

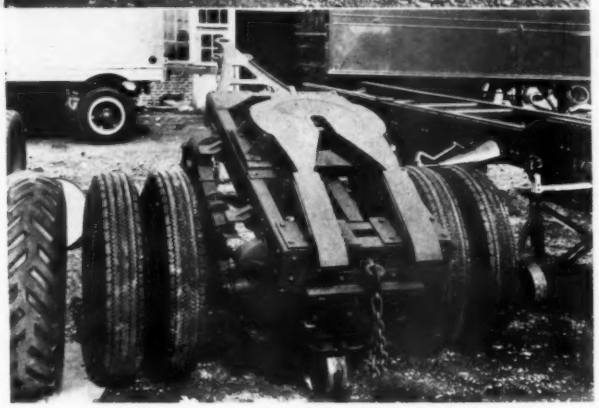
Spontaneous enthusiasm of the men for their work has been of great help in building the 2d Cavalry Division's photographic unit into an efficient and self-reliant outfit. When equipment is lacking, they build it. If they need paint, they "borrow" it. Serviceable tools are contrived from strange discarded gadgets. The portable darkroom was furnished from packing crates plus odds and ends picked up from the salvage yard, motor pool, and constructing quartermaster.

There's something about photography which inspires its devotees to unusual effort—something which borders on the scientist's thirst for knowledge, his hope of discovering new secrets which will be of service to his fellow man. The 2d Cavalry Division's new photographic unit possesses that something. Such an aura of inspirational effort lends initiative and pride in the individual's routine work. It gets things done. It has earned the cavalry photographer *his spurs!*

Trailers Solve Many Problems

By J. Edward Schipper, M.S.A.E.*





Upper left: Van-type of trailer for general heavy-duty cargo work. Drop-frame construction with differential dual tandem wheels. *Upper right:* Special 7-ton carryall unit with walking-beam tandem axle used for transporting Caterpiller trailers with cranes. *Lower right:* "Dolly" with fifth wheel for converting semi-trailers to full trailers; trains can be made from two or more semi-trailers thus equipped.

THE tremendous versatility of the trailer for military purposes is clearly illustrated in the wide variety of such units now employed and projected for future development. The January-February issue of The CAVALRY JOURNAL carried a comprehensive story on army trailers and illustrated a number of different types. On this page are shown additional units which are particularly adapted for heavy-duty use.

By the use of drop-frame construction and by the employment of tandem axles, it is possible to get tremendous carrying capacity combined with a low center of gravity. Illustrated here is a van-type trailer. This unit is suitable for general cargo work. It weighs five tons and has a capacity of 14 tons. In other words, the gross vehicle weight is 19 tons. It is equipped not only with the tandem axle, as shown, but with differential dual wheels. These provide independent rotation for each of the duals thereby avoiding the scuffing of the tires, which necessarily results from the use of the rigid duals with wide centers between adjacent tires. This van-type trailer is 26 feet in length.

For the transportation of matériel, an entirely different type of trailer design is required. Here again the drop-frame type of construction is extremely valuable in lowering the center of gravity, contributing therefore to the stability of the vehicle. On this type unit, tandem axles may be employed, as shown here, or in the case of extremely heavy equipment multiple wheels are often employed.

Another interesting development in army trailers is the "dolly" which is employed to convert a semi-trailer into a full trailer unit. This is an adaptation of a highly efficient hauling unit very successfully employed in commercial work.

At this time a great deal of attention is being given to the ability to transport artillery of much heavier capacity than that which has formerly been considered as field or mobile units. Cavalry as well as infantry and artillery must contend with the need for both increased fire power and mobility. The load that can be carried on a self-propelling unit is limited by many factors which do not prevail in the case of trailers. In this type of work as in other forms of transportation, the value of the "shuttle" system cannot be overstressed.

Bigger loads, greater maneuverability, greater range on a tank load of fuel, more versatility and less manpower per ton-mile are all essential and valuable attributes of this form of transportation.

*Advertising Counsel, Fruehauf Trailer Company. (Member, Society of Automotive Engineers.)

Cadres and Training

EDITOR'S NOTE: *This valuable training memorandum eminated from Headquarters of the Second Army —commanded by Lieutenant General Ben Lear.*

THE Army is being called upon to furnish officers and enlisted men as cadres for the training of new units soon to be formed. . . . *"FIT TO FIGHT."*

TRAINING

Among the considerations to be impressed upon the training personnel is the chief lesson we have to learn from the events of the war since December 7, 1941—which is no more or less than emphatic affirmation of training and character, principles that are familiar in our military teachings but that have been given insufficient practical demonstration:

Reconnaissance: Intensive and unrelenting, expert and indefatigable, a test of the professional capacity of officers and men.

Disciplined Dispersion: The skilful dispersion of potential targets—planes, trucks, stores, troop elements—making the most of concealment as well, wherever that is attainable. This also requires expert planning and prompt disciplined action, so that dispersion does not lessen effective control at any time.

Physical Ruggedness: The development of the power of stamina, so that the ultimate resources of human character may be drawn upon by bodies enured to hardship and prolonged endeavor against obstacles. This cannot be acquired by any royal road to attainment. Soldiers cannot march over broken terrain 15 to 20 miles a day, over roads 25 to 30 miles a day, with full equipment, day after day, and still be physically and spiritually equipped to do hard battle unless they have developed that stamina by such marches and are prepared to meet tests of that character on call. There is only one way to build legs and hearts—and that is to build them in training, so that when they are called into action no unusual, unaccustomed strain is put upon the soldiers in addition to the other unavoidable strains to which they are subjected under battle conditions.

Our infantry soldiers think too much in terms of gasoline transportation. They must be prepared for situations where long marches day after day or night after night will have to be made on their own power, either because the terrain denies truck movements, or because gasoline supply shortages will most certainly exist in many instances, or because enemy air operations may make the overloading of roads fatally impractical. . . .

Over-emphasis on Equipment: There is a tendency in the press, in civilian opinion, and among too many of our personnel, to believe that equipment is the chief answer to the soldiers' problems. That is a grave error of emphasis. Equipment does not fight. It is an instrument of men. Equipment is not a substitute for character, esprit, dogged determination, élan, development of tactical skill, and *the will to close with the enemy and destroy him.* There will be times when our enemies may have superior equipment, and the American soldier shall have to hold his ground or take ground in the face of that partial and limited superiority in instruments of warfare. That will always be true somewhere. That is where spirit, character, training, and the will to win come into play. It is a false premise, psychologically enervating and injurious to morale, to place an emphasis on equipment doing the work of men. This is also true in relation to air power. We cannot conceivably have air superiority at all times and in all places. But we can have superiority of determination and moral and physical ruggedness. Without that we are not "fit to fight."

We have much to learn, it is true; and there are and will be new things to learn. But we must first prove that we have thoroughly established the fundamentals upon which success in defense and victory in offense depend in every battle against a determined enemy. Let us never make the mistake of underestimating our foes or overestimating our tools. Men are the essence of fighting; the hearts, the courage and the blood of soldiers win wars. It must be fixed in the mind of every individual officer and man in the Army that *man*—the American Soldier—is the master machine in war.

ESPRIT DE CORPS, AND MORALE

The training and spirit of the soldier reflects the zeal, the pride, the loyalty and the professional ability of the officers and noncommissioned officers entrusted with his training. The development of *esprit de corps* is a responsibility of leadership and must, therefore, be exemplified in the personality of the leader. He sets the note, and his pride of accomplishment evokes pride and will to learn on the part of the soldier. The exchange of loyalty—the unstinted capacity to give of one's self—between the officer and the soldier cannot be too complete. The never-failing loyalty and service of the officer to his men should be outstanding, an example of devotion to duty, of understanding of human nature, of generous willingness to endure every hardship.

SIMPLIFIED TRAINING

Training must be reduced to its simplest possible form. If we can train each individual officer and man in the Second Army to *obey,* to *march,* to *shoot,* and to *be imbued with the irresistible will to victory,* we can point with pride to such an accomplishment. The above tasks require time, effort, intelligence, reflective and creative thinking, and inspired leadership. There is no exertion that provides a greater reward to the soldier than the conscientious preparation of his comrades at arms for success in battle.

LEADERSHIP

By Lieutenant Colonel J. J. LaPpage, (Cavalry), A.G.D.

A TENDENCY to accept without question the old axiom, "A leader is born and not made" has developed recently despite ever present emphasis on the development of leadership in all echelons of command. Consequently, many young officers have received a "brush off" when they have attempted to secure definite knowledge of that mysterious and nebulous quality "leadership" that they must develop and exemplify. It is granted without question that "a born leader" may go farther than a "made leader" but since so many leaders are needed and so few are born, definite efforts must be made to make or develop leaders. There are many methods of developing leadership, but the two considered most applicable are: guidance and assistance by superior officers and endeavor by the leader himself.

Many reams have been written on leadership and it is not the intent of this article to discuss at length the general term. Presented in diagram form, for ready reference, are the qualities considered most essential in a leader. (These qualities are not entirely personal ideas as they have been crystallized from discussions occuring during interviews with hundreds of Reserve Officers competing for appointments in the Regular Army.) If superior officers will observe younger officers for these qualities and assist in their development and, if the younger officers will constantly strive to exhibit these qualities, leaders will be developed whom men will willingly follow. Remember that it is necessary at all times to think like a leader, act like a leader, and be a good example for others to follow.

Many young officers will easily understand the diagram and the dictionary meaning of the words employed, but naturally their principal interest is "how may I exhibit the qualities listed?" For that purpose a brief explanation of the "every day" manifestations of those qualities which are not self-explanatory follows together with the most common pitfalls that must be avoided.

Integrity. Morality. Select your companions, and means and places of amusement with extreme care. The easiest way to lose the respect of your men is to be seen in a place of low repute. Watch your alcoholic consumption and don't be seen with too much aboard. Don't appear near your troops with the faintest trace of alcohol on your breath. A beer at lunch will leave lingering traces that will cost you the respect and trust of your men.

Justness. Impartial. Non-commissioned officers should be considered as a group and apart from the other enlisted men. Avoid special favors to any particular NCO because of his duties, but, on the other hand, don't forget the special relationship between a first sergeant and the company commander. Don't ride certain men because they may be slower than others, and don't push outstanding men. Give each man the opportunity to earn his niche by his demonstrated ability.

Loyalty. Subordinates. Always be willing to assist a man in personal or military difficulties. Make every practicable effort to improve the mess and living conditions of your men, limited only by means available. Ascertain that equitable distribution of fatigue and other unpleasant duties is made. Always see that your men are fed and are as comfortable as practicable before thinking of your personal comfort. Support a subordinate even when he has exhibited faulty judgment. Don't correct or call to his attention the errors of a subordinate where men under him can hear the conversation.

Superiors. Support and carry out orders and policies at all times. Avoid criticism of your superiors for by indulging in such you lose the respect and trust of those hearing your remarks.

Knowledge. Ability to Impart. Prepare your lectures and demonstrations so that they will be interesting as well as instructive. A little acting ability will be of great assistance. Avoid mannerisms that will distract the attention of your class.

Initiative. Be on the alert to detect and correct errors. LOOK FOR THINGS TO BE DONE. Don't wait for your commander to point out tasks to be accomplished. As long as the execution of your initiative is within the boundaries of outlined policies, you will be commended, but avoid innovations without first discussing them with your commander. Remember that poorly directed initiative is worse than none at all.

Bearing. You will be judged by your appearance and bearing. Always appear as neat, clean, well shaven and as well shined and polished as is practicable. A sloven appearance and poor bearing will create a definite doubt of your efficiency. Never appear with buttons missing or outer clothing unbuttoned. Your uniform should be worn with pride. Select it with care and have it tailored to fit.

LEADERSHIP

- **INTEGRITY**
  - Honesty
    - Deed and Act
      - Trustworthy
      - Honorable
    - Truthful
      - Avoid Prevarication
      - Avoid Exaggeration
      - Avoid Omission of Fact
  - Morality
    - Clean Living
      - Self
      - Companions
    - Clean Thinking
    - Clean Acting
      - Self-Restraint
      - Surroundings
- **JUSTNESS**
  - Justice
    - Reward
      - Promotion
      - Commendation
    - Punishment
      - Prompt
      - Equitable to offense
  - Impartial
    - Fairness
    - Consideration
- **LOYALTY**
  - Self
    - Family
    - Religion
  - Subordinates
    - Officers
    - Enlisted Men
  - Superiors
    - Chain of Command
    - Country
- **KNOWLEDGE**
  - Technical
    - Thorough and Detailed
      - Present
      - Future developments
    - Ability to Apply
  - Ability to impart
    - Instructing ability
      - Voice
      - Manner
      - Gestures
    - Demonstration
- **INITIATIVE**
  - Thought
    - Reasoning
    - Concise, Clear
  - Action
    - Alert
    - Considered
    - Logical
- **BEARING**
  - Physique
    - Innate
    - Developed
  - Personal Appearance
    - Beard
    - Hair
    - Fingernails
  - Uniforms
    - Clean, Well pressed
    - Repair
    - Properly fitted
- **EMOTIONAL STABILITY**
  - Poised
  - Level Headed
  - Not excitable
- **JUDGMENT**
  - Sound
    - Considered
    - Weighting factors
  - Accuracy
    - Correct
    - Proper application
  - Inspiration
    - Soundness inspires others
    - Personal confidence
- **COÖPERATION**
  - Superiors
    - Full support
    - despite conflict of ideas
  - Equals
    - Helping hand
    - Open mind
  - Subordinates
    - Assistance
    - Guidance
- **DEPENDABILITY**
  - Reliable
  - Trustworthy
  - Loyal

The Cavalry, R.O.T.C.

Massachusetts State College

*By Colonel Donald A. Young, Cavalry**

MASSACHUSETTS STATE COLLEGE, located in Amherst, Massachusetts, overlooking one of the most picturesque sections of the Connecticut Valley, has had military training as part of its curriculum since its foundation in 1863. Its first military classes were in operation in 1867, and military science has been taught at the college since that date.

The purpose of the College in including military science in its curriculum was made clear in the very beginning. This instruction was intended not only to train officers but also to strengthen the defenses of the country by diffusing some knowledge of military principles among educated men. That purpose was well realized when more than thirteen hundred former students of Massachusetts State College saw service in the first World War, and of that number four hundred and forty-six were commissioned officers. How well their knowledge served the nation in that emergency is indicated by these figures and the records of the men; it is a record of which the College is justly proud. The requirement that all able-bodied male students receive basic military training has continued to the present time. Since the establishment of the Cavalry R.O.T.C. Unit in 1920 a total of about 8,500 students have been given military training. Of these over 400 have been commissioned in the Cavalry Reserve. As we confront another crisis in our history, the value to the nation of compulsory military training at Massachusetts State College is again revealed.

The R.O.T.C. in its present form of a Cavalry Unit was established in 1920. The selection of Massachusetts State College by the War Department for one of the few Cavalry R.O.T.C. units in the nation was a happy one. The Connecticut Valley has always been a horse country. No section of the country, except perhaps Virginia, Kentucky, and the Southwest, has known more interest in horses and equestrian sports, and the only change through the years has been an evolution from trotting to saddle horses. With its long-standing background of military training, and located in the heart of fertile horse country, Massachusetts State College was a *natural* for a Cavalry Unit.

The Massachusetts State College is run on the University plan and has a total enrollment of about 1800. That total is broken down into about 1300 in the four-year College, including 400 co-eds, the agriculture section (Stockbridge School) of about 400, and the Graduate School of about 100.

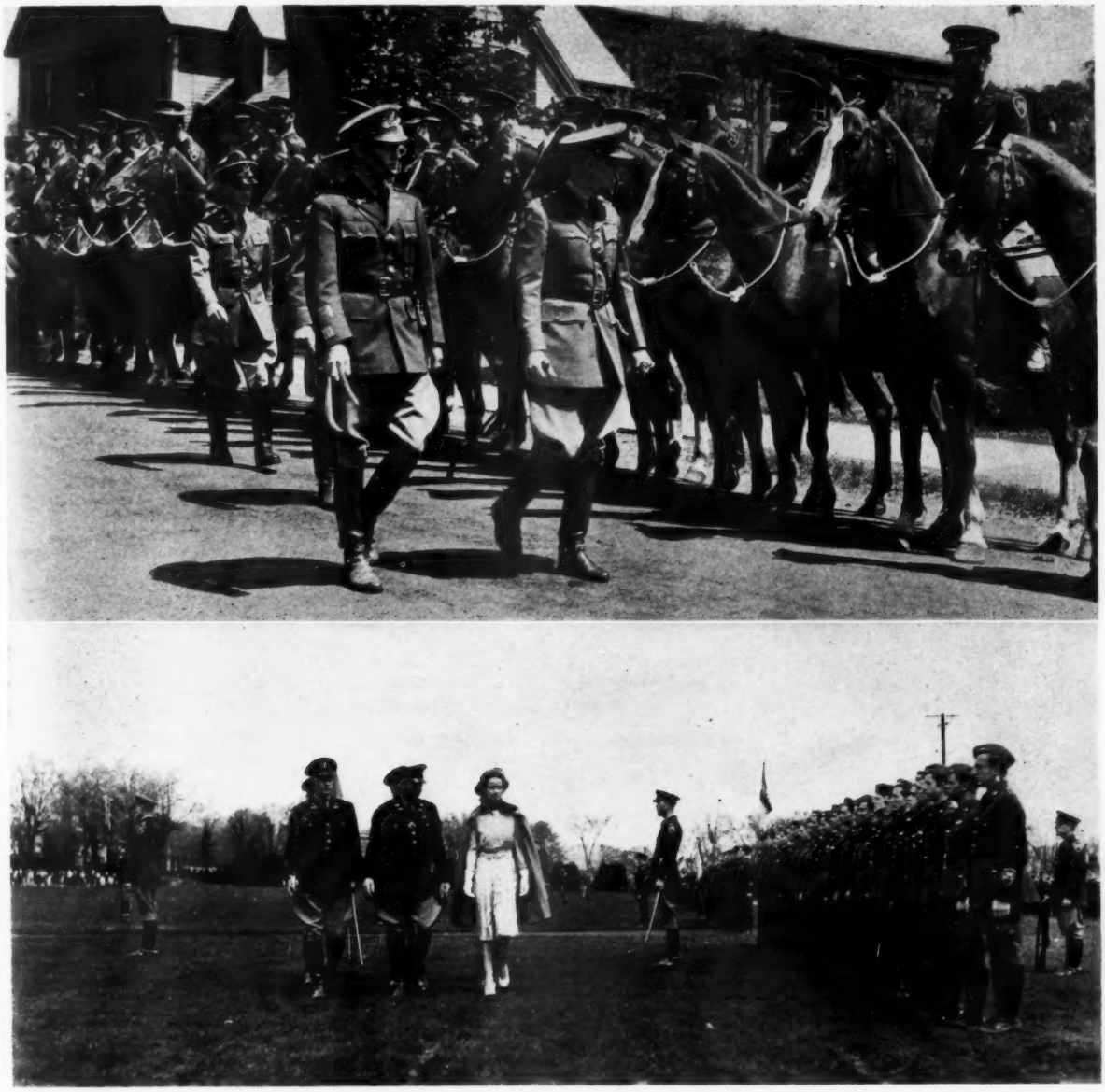
The College is fortunate in having a very large acreage of campus and adjacent farming and experimental areas, crisscrossed by dirt roads and fences. Many of these fences have been paneled to provide access to mounted troops. In addition, the College has a large Forestry Reservation on Mt. Toby, ten miles north of the campus. This reservation, with its varied terrain of trails, mountains, streams, and ponds, is available for R.O.T.C. training. It has proved invaluable for overnight and week-end camps, marches, mounted and dismounted problems.

The R.O.T.C. instructional staff at Massachusetts State College consists of four officers and seventeen selected enlisted men of the regular army. The Cadet Officers (Seniors) are rotated as assistant instructors for the first-year basic instruction as a means of further developing leadership, initiative, and self reliance. The Cadet Officers (Seniors) and N.C.O.'s (Juniors) are given full responsibility for their respective units, and competitive drills and exercises develop a high type of troop unity and *esprit*.

The Massachusetts State College R.O.T.C., an all-Cavalry unit, is conducted in accordance with the standard plan promulgated by the War Department. The climatic conditions obtaining in New England require for the most effective progress in military training that the R.O.T.C. program be divided into fall, winter, and spring periods. The fall period devoted to outdoor practical training, the winter period to indoor theoretical training, and the spring period to more outdoor and practical work. Hours of instruction are staggered throughout the week, and the classes broken down into sections for effective training. All students are required

Machine-gun instruction and firing.

*P. M. S. & T., Massachusetts State College.



Top: Major General James A. Woodruff, Corps Area Commander, inspecting the Corps of Cadets. *Bottom:* The P. M. S. and T. and honorary colonel inspecting the regiment.

to take the basic R.O.T.C. course, which is a requisite for graduation. The Cadet Corps has a strength of about 500 and is organized as a Regiment of five troops of two squadrons.

The stables located adjacent to the campus have a complement of seventy horses, and are the center of activities during the spring and fall periods. To say that the college is horse-minded is, as the horses can well testify, stating the matter mildly. The extensive mounted-drill field adjacent to the stables contains a large horse-show ring, paddock, bull-pens, jumping-chute, and other cavalry equipment. It recognizes no holidays; and the occasional falls, spills, and "bawls" are taken as a matter of course.

The advanced military classes are kept abreast of the rapid changes in military organization and operations by means of a private reading room in the military building. Here are kept such current periodicals as the *Cavalry Journal, Army and Navy Journal, Leavenworth Military Review,* and many others; here, too, are books of military interest. Articles which have timely bearing on topics being studied are required reading. In addition, the various materials distributed by the Cavalry School are made available and constitute an important part of of the program of instruction. All seniors are required to do extensive reading in the customs of the service and the problems which confront the young officer.

As for marksmanship, the record speaks for itself.

The indoor small-bore rifle gallery has been improved and the marksmanship program expanded to insure adequate training for all students. The College has held the National Championship more than once in the intercollegiate indoor matches held under the supervision of the National Rifle Association. The present student body is maintaining a high record. A strong rifle team is now engaged in firing matches with many competitors scattered throughout the nation.

The summer training* given to the first-year advanced cadets is the highlight of their college military training. The six weeks in the field are filled with intensive and practical instruction; during this time a march of over four hundred miles to Fort Ethan Allen and return is conducted. At the Fort the cadets qualify on the range with the service rifle and pistol, and receive training with machine guns and other weapons. They also combine with the Norwich Unit in tactical problems and exercises. During the march to the Fort and return, the officers in charge take full advantage of the rough terrain and back country roads of Massachusetts and Vermont to teach and practice, with problems and exercises, the principles and technique of reconnaissance, night marches, concealed bivouac, river crossings, outposts. All this formal training is supplemented, of course, by the more personal things which the cadets as embryo cavalrymen must learn in the field. At the end of six weeks of intensive field work, living with their horses and sleeping in pup tents, the cadets return bronzed, hard as nails, filled with confidence in themselves and their horses, wise in the ways of horses and men; and another group of real cavalrymen is born.

*EDITOR'S NOTE: Since this article was set in type, R.O.T.C. Summer Camps have been suspended for the duration of the war in favor of the basic training course at appropriate special service school.

Top: **On the march to week-end camp.** ***Center:*** **Cadets bivouac.** ***Bottom:*** **Ready for the return march.**

In the present emergency the course of instruction has naturally been extended and intensified. Not only are more class hours devoted to military training in the college schedule, but also much of the college program has been modified to meet defense requirements. This change helps the R.O.T.C. both directly and indirectly. For example, the facilities of the Physical Education Department have been used to insure that all students get a thorough training in first aid and military sanitation and hygiene.

The standard for selection for Advanced Course training and commission is high at the Massachusetts State College. Selection is determined by competition, and once accepted the cadet has to prove himself in every way during the two years of basic training. The competition is keen and hard; the men selected are the fittest of the fit. Limitation of allotment this last year precluded many fine men from selection to the advanced course R.O.T.C. The Marine Corps and the Navy are, however, selecting many of these men for commission.

The administration, the faculty, and the co-eds are solidly behind the R.O.T.C.—a fact evidenced by the support rendered and the hours allotted for military training, which exceed the War Department requirements by one hour per week. The co-eds, by their intense interest in the Corps of Cadets, are an important encouragement to the R.O.T.C. Many of the cadets owe their stripes and bars to the energetic backing of their campus girl friends, who are not adverse to telling them to go out and make good as military men, or else! A co-ed honorary Cadet Colonel is chosen each year by the Advanced Course Cadets at a formal military ball; she is the envy of the female college population.

As part of the College Commencement week exercises, each year the Cadet Officers under the supervision of the Military Instructors sponsor and conduct a horse show which is one of the leading events of the Connecticut Valley.

The declaration of War brought a new and more

Cadets training remounts.

serious realization to the R.O.T.C. Cadet of the value of military training. It was at once realized by the Corps of Cadets that their military training was now an extremely grave and serious matter and the reaction to the increased demands was immediate. A new note of earnestness and appreciation towards their training was at once evident. The College put into effect under supervision of the Physical Education Department an intensive body building program of bodily contact and hardening exercises. This was taken in stride by the Cadets even though it cut into their little free time and set their dinner hour back. The indoor range increased in popularity; spontaneous individual and squad competitions in marksmanship developed. There were not enough daylight hours available so voluntary evening sessions were organized. There were more demands for privilege riding. Even the horses appeared to feel that something was developing when their work hours and oats increased. Freshmen eyed the Cadet Officers with greater respect and polished their belts with a bit more care. The first year Advanced Course Cadets were bitterly disappointed when the War Department announced the necessary suspension of the summer field training. The class to a man volunteered for a week of field training at their own time and expense immediately following Commencement. The spirit had always been present, but a new urge had been added.

On the other hand the declaration of war imposed greater and more definite tasks on the P.M.S.&T. and the military instructors. No longer do the newly commissioned Second Lieutenants O.R.C. go out into professions and industry, to attend short training camps and carry on theoretical training through extension courses. They now must be prepared to go directly to the field or to service schools for specialized training immediately following graduation and take their place in a unit of the growing Army of the United States.

Every effort is being made at Massachusetts State College to increase the practical training of the Advanced Course Cadets. More time is being devoted to training in the technique of weapons; to leadership of small units; to development of mental alertness, initiative and resourcefulness. Much of this is being accomplished by voluntary week-end camps during the fall and spring seasons which the College indorses and supports. It is felt by the College that it is time well spent by a student. Should a cadet cut Saturday morning academic classes to mount-up and march over the road to a camp of military instruction its a College contribution to the war effort. The Cadet will be in class the following Monday clear eyed and confident.

The State of Massachusetts is proud of its Cavalry R.O.T.C. Unit and in turn the Reserve Officer graduates are proud of their training received at Massachusetts State College. In the current appointments to permanent commission as 2d Lieutenants, Regular Army, by competitive examination of Reserve and National Guard Officers on extended active duty, announced by the War Department in February, six of the fifteen appointments in the Cavalry branch were won by Massachusetts State College graduates. Massachusetts State men are making good in the Army of the United States.

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Law and Puryear Hall, Cavalry Barracks (see arrow upper center).

Cavalry R.O.T.C. at Texas A. and M.

By Lieutenant A. P. Utterback, Jr., Cavalry

IN our rapidly expanding army, the rôle played by the Reserve Officer is becoming increasingly important. So, it is only natural for an officer to want to know what kind of training the R.O.T.C. Cadets are receiving, and what he might expect of these soon to be commissioned officers who will be under his command in the near future.

Texas A. & M. boasts nine units and now has in the service well over six thousand Reserve Officers. Although the Cavalry Unit is not the largest on the campus (about 500), approximately fifty officers are commissioned annually.

The Cavalry Unit here is set up, for training and administrative purposes, as a regiment of two squadrons of two troops each. In addition, a Headquarters and Service Troop, and a Machine Gun Troop are attached to the squadrons. These two troops are auxiliary troops in name only, and actually perform as rifle troops. The Organization is as nearly as possible the same as a regular regiment, from the Regimental Headquarters down through the squad. The unit has two barracks, two men living in each room. Under the supervision of the instructors and tactical officers, responsibility is placed on the Regimental, Squadron, Troop and Platoon Commanders, for training, discipline, police of the barracks, as well as administrative duties. Morning Reports, Sick Books, Duty Rosters, and a system of Troop funds are kept by all troops, the troop commander rotating the administrative duties so that each Junior and Senior cadet has practice as Administrative Officer. All records are as authentic as possible, and are checked daily by the instructors.

The service uniform is worn at all times. The uniform for students enrolled in the basic course is Government Issue, and that of the advanced course students is purchased from a uniform allowance furnished by the Government. This is advantageous to the cadets as the uniforms are virtually the same as the Regular Army uniform, and so give the graduate a start on the equipment he will need after being called to active duty.

Recently the College has been setting up its machinery for a change from a four- to a three-year plan, which shortens the time of graduation to three years, the school operating the entire calendar year. This plan becomes effective in June, at which time the new school year will begin, and although this schedule shortens the time of training, it does not compress the scope of instruction. Along with this change came a two-hour in-

[1]Cavalry, Coast Artillery, Field Artillery, Chemical Warfare Service, Engineers, Signal Corps, Infantry, Ordnance and Quartermaster Units.

crease in the present practical instructional period, which now allows all cadets four hours of practical drill per week. Another recent change was the inauguration of 7:15 (War Time) Reveille and calisthenics. The drill is conducted by Squadrons by the cadet officers. After calisthenics, rooms and barracks are cleaned. All cadets march to the mess hall for all meals. The summer camp which was attended by all advanced course contract cadets during the summer between the Junior and Senior year, will be deferred until immediately after graduation.

All Freshmen and Sophomore students are required to take the basic course, which consists of one theoretical and four practical hours per week. The basic course includes sixty-four theoretical (classroom) hours of military fundamentals, including Military Discipline, Courtesies and Customs of the Service, National Defense Act, Military History and Policy, Sanitation and First Aid, Organization of the Army and Cavalry, Map Reading, Cavalry Marches and Camps, Scouting and Patrolling, Weapons, Musketry and Technique of Fire. The practical (drill) course consists of two hundred fifty-six (256) hours of Rifle Marksmanship, Mounted and Dismounted Drill, Equitation, Principles of Scouting and Patrolling, Weapons, and Combat Principles of Rifle and Light Machine Gun Squad and Platoon. The Corporals are chosen from the Sophomore class and all other basic students are privates.

The advanced course is more intensive and is taken by selected Junior and Senior students. This course is seven hours per week, three theoretical and four practical. The advanced course includes Aerial Photograph Reading, Troop Administration, Care of Animals and Stable Management, Principles of Leadership, Instructional Methods, Horsemanship, Weapons, Combat Principles of Small Units, Defense Against Chemical Warfare, Military Law, Property, Emergency Procurement and Funds, Tactics and Technique of Mechanized and Armored Units, and Combat Intelligence. The Sergeants are chosen from the Junior Class and the cadet officers from the Senior Class. The Juniors and particularly the Seniors receive a great deal of time on instructional methods and leadership, since the Seniors are charged with a large amount of the training. For example—all drill, mounted and dismounted, weapons, rifle and pistol marksmanship, and some equitation and tactics are taught by the cadet officers, assisted by the cadet noncommissioned officers.

With the recent increase of time allotted to practical drills the Cavalry, as well as the other units at the college, has "taken to the field" in an effort to apply practically the principles taught in the classroom. Problems in Scouting and Patrolling, Security, to include Advance Guards, Flanks and Rear Guards, Covering Detachments and Outposts, Offense, Defense and Delay, take up the entire second semesters' practical work. The college is blessed with a rather ample supply of rolling wooded terrain near the campus, which is now being constantly used for tactical problems. The school schedule is arranged so that two troops drill each Tuesday, Wednesday, and Thursday afternoon from 2:00 to 6:00 PM. Although we have only enough horses to mount one troop at a time, this schedule allows each troop to be mounted every other week, or else half the drill period each week.

Top: **Troop B en route to training area.** ***Bottom:*** **At review.**

On March 28th, the Nineteenth Annual Horse Show was held at the College, and sponsored by the Cavalry Unit. This show was open to all cadets of the College, regardless of branch, and such events as jumping, charger classes, hunt teams, various polo classes and other events were featured. The horse show is a part of the locally renowned Cavalry Week, which includes the Annual Cavalry Ball.

After four years of military training here at A. & M., with experience as private, noncom, and officer, these new officers receive a broad outlook with which to start their active military careers. There is, of course, no substitute for actual duty with troops, but the graduates here leave with a sound background and the determination to quickly become capable officers in order to take their places beside their "Ex-Aggie" predecessors.

R. O. T. C., University of Illinois

By Colonel Murray H. Ellis, Cavalry

THE Military Department of the University of Illinois is one of the largest R.O.T.C. establishments in the country. The total enrollment averages close to four thousand. The instruction staff consists of thirty-one officers and fifty-six enlisted men. Colonel Leonard C. Sparks, FA, heads the department as Professor of Military Science and Tactics. The University and state authorities give the Military Department excellent support and have provided exceptionally fine facilities for instruction.

This University is a Land Grant school. All male students, except those few who are excused for physical disability or like causes, are required to complete successfully the two years Basic R.O.T.C. course in order to be graduated from the University. The Advanced Course enrollment is limited by appropriations to six hundred. The number of applicants always has greatly exceeded the number who could be accepted.

Units are maintained by six branches of the service, Cavalry, Infantry, Coast Artillery, Engineers, Signal Corps and Field Artillery. The Field Artillery Unit is the largest and is divided into Horse drawn and Motorized divisions. The size of the various units is controlled by quotas set up by the Professor of Military Science and Tactics. Within the limits of these quotas, students may select the branch in which to be trained.

Most of the activities of the Military Department are housed in the large Armory which contains a drill floor 220 feet by 400 feet, a gallery range with a hundred firing points, and ample class room, office and storage space. There are two drill fields, one of which is used for dismounted drill and polo and the other for mounted drill.

The Cavalry Unit has an average enrollment of about 625, about 100 of whom are advanced course students. The Cavalry is popular with the students and the unit would be much larger if it were not limited to a quota.

The Cavalry instruction staff consists of six officers, one Lieutenant Colonel, regular army and five assistants, reserve officers on extended active duty. Lieutenant Colonel John D. Hood, Cavalry, is the unit director and is assisted by Captain Olaf A. Watne, Captain Roy E. Etnyre, First Lieutenant Howard P. Schaudt, First Lieutenant Bruce W. Benedict and First Lieutenant Phillip R. F. Danley. All of these officers except Colonel Hood are graduates of the University. One sergeant and one private first class assist in the practical instruction and the clerical work, these in addition to the stable crew.

The Cavalry and Field Artillery units together are allowed 150 horses which are pooled and used by both Units. The stables and storage facilities for forage are excellent. The stable crew numbers a total of twenty-five enlisted men.

The Cavalry is organized into eight troops for drill and other practical instruction. Each troop has one two-hour drill period a week. The seniors are the Cadet Officers and instruct the freshmen and sophomores under the supervision of the officer instructors. The Juniors have most of their practical work separately from the rest of the classes and a good proportion of their drill time is devoted to equitation, animal management, and other horse subjects, in order to prepare them to act as instructors to the freshmen and sophomores the following year.

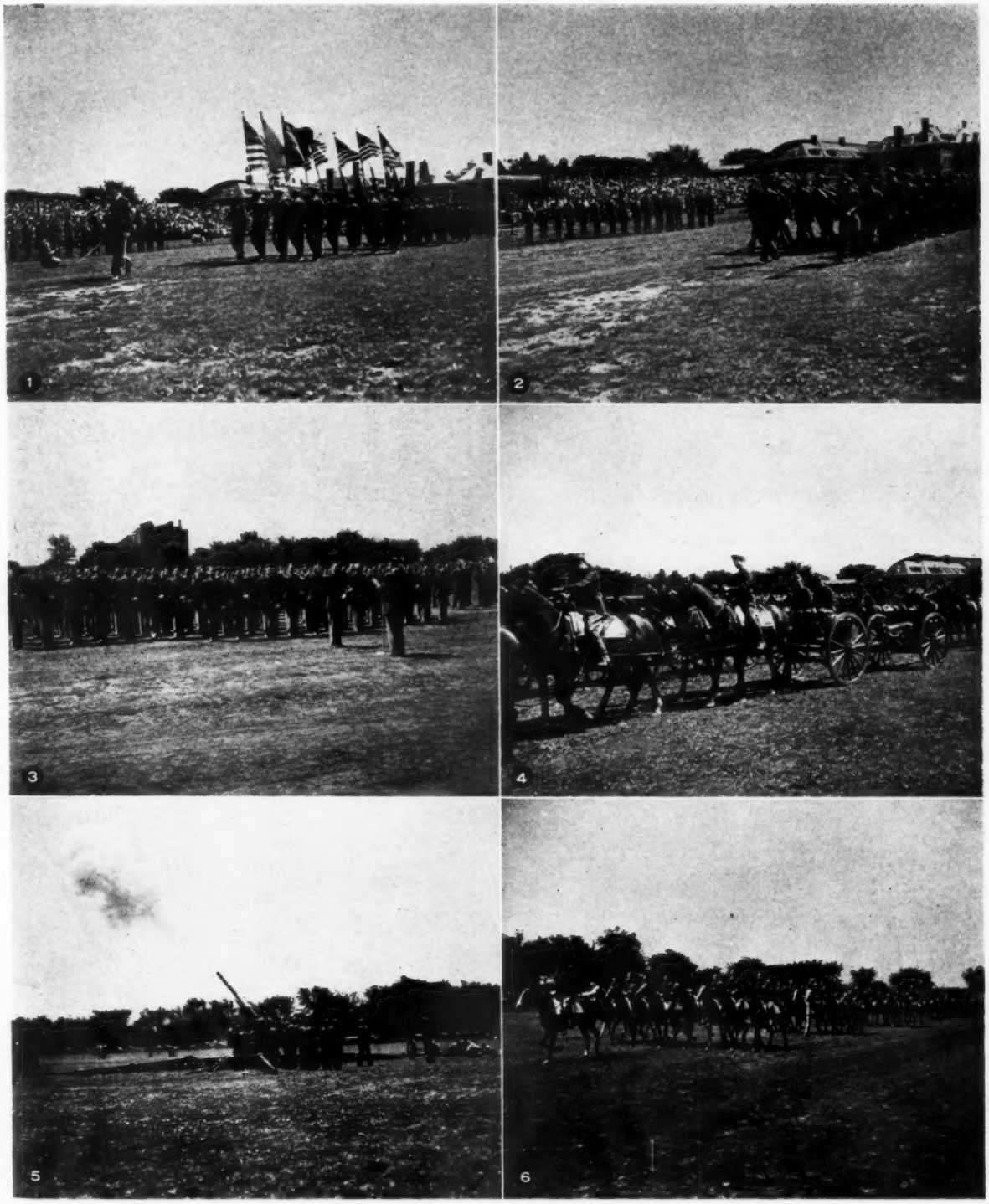
Although the University is located in the heart of a great farming country, the great majority of students know little or nothing of horses or horsemanship. Accordingly, one of the first and most important tasks is to teach them the rudiments of horsemanship and horsemastership. There is no indoor riding hall large enough to accommodate a troop. This necessitates holding all mounted work outdoors, with the attendant interference from weather conditions. However, by concentrating the mounted work in the fall and spring and scheduling the dismounted work largely during the winter months it is possible to meet this problem fairly satisfactorily.

It has not yet been possible to obtain any mechanized equipment or the new cavalry weapons, due to more urgent demands elsewhere. This necessitates that the instruction in these subjects be entirely theoretical. This is unfortunate, as many of our graduates when ordered on active duty go to the Armored Force or to Mechanized elements of the Cavalry.

For a number of years past the advance course students attended a summer camp, normally between the Junior and Senior years. These camps have been held at Fort Custer, Michigan. In recent years, there has been no Cavalry at Fort Custer to assist in the R.O.T.C. instruction. Last summer the 5th Rcn. Troop was present part of the time and rendered great assistance by making available its men and equipment for the instruction of the Cavalry Cadets and by putting on problems and demonstrations in which the students participated. *The War Department has recently announced the discontinuance of summer camps for the duration of the war. Hereafter, students will be required to complete the basic course at the Cavalry School before being commissioned.*

In addition to the regular required work at the University, a number of extra-curricular horse activities are conducted. Many of the students get more horsemanship instruction in connection with these activities than in the regular classes. Among these activities are an honor troop called the Black Hawk Troop, semi-annual student horse shows, and the polo team.

The Black Hawk Troop is composed of Cavalry



GRADUATION REVIEW, R.O.T.C. UNIVERSITY OF ILLINOIS

1—Massed colors. 2—Infantry. 3—Newly-commissioned second lieutenants taking the oath of office. 4—Horse-drawn artillery. 5—AA artillery demonstration. 6—The Black Hawk Troop.

Sophomores who are candidates for admission to the Advanced Course. Juniors and Seniors act as officers and instructors. The troop receives additional equitation instruction and cavalry drill. Special drills are put on for the annual Military Day and other like occasions.

The student horse shows are held twice yearly,

1—Cadet Norman Key, newly-elected president of Cavalry Club, about to be baptized in the horse trough, a traditional ceremony. 2—Zowie! 3—University military stable. 4—Show-down inspection in bivouac at Gull Lake, Mich. 5—Cadets starting on a field exercise with the 5th Remount Troop.

usually in December and April. They are organized and sponsored alternately by the Field Artillery and Cavalry Cadet Officers' Clubs. There is strong competition between the riders of the two branches and many hours, on Saturdays and evenings, are put in in training and preparation.

Polo is a varsity sport at Illinois. Letters are awarded to the varsity players and numerals to the most promising freshmen. The University does not furnish financial support, which necessitates the payment of a ten dollar dues per semester by each member of the squad in order to meet the expense of the purchase of playing equipment and to finance trips. All members of the association are assigned to the A squad, the B squad or the C squad. Beginners are placed in the C squad where they are given a great deal of equitation and care of animals. Equitation classes are conducted four afternoons a week and Saturday mornings.

Since a large percentage of the officers now on duty with the Army received their commission's through the R.O.T.C., this activity has been, and will continue to be, of vital importance to the war effort. This University will continue to produce about three hundred officers per year, fifty of whom are cavalry officers, to help fill the pressing need for officers for our expanding army.

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University of Georgia Cavalry Unit

By Lieutenant Colonel O. C. Newell, Cavalry

THE Cavalry unit of the Reserve Officers' Training Corps, University of Georgia was established in 1920. It comprises the First and Second Basic course and the First and Second Advanced course. As the student progresses he is given more instruction in Horsemanship and Horsemastership and allowed more privileges in riding.

From the Second Basic class are chosen those students who have demonstrated their ability to continue with the Advanced course. The interest and self-improvement shown in extra curricular and voluntary work is of great assistance to the instructor in selecting those students who are to be allowed to enroll in the Advanced course.

The University of Georgia owns a large acreage of varied terrain which the First and Second Advanced students may use in cross country work. The cavalry stables have at present seventy-four public animals, cared for by a detachment of enlisted men. Near the stables is a sand ring and jumping pen in which the Basic students are given preliminary work. The Advanced students have access to a large jumping and hunting course including the normal obstacles one would meet in a cross country ride.

A practice mounted pistol course is conveniently located for advanced course students.

Saturday afternoon and Sunday mornings are open for typical small unit cavalry training and cross country rides by advanced students.

A "paper chase" is scheduled monthly followed by a hunt-breakfast. These events are attended by eighty to ninety per cent of those eligible.

Cavalry clubs have been organized by the First and Second Advanced students. They meet one evening each month at which time some interesting subject or motion picture on cavalry weapons or tactics is presented.

The Senior Club sponsors the annual Horse Show given at the University in the Spring Quarter.

The course of instruction as prescribed by the War Department for each class is as follows:

FIRST BASIC CAVALRY

1. *Military Fundamentals:*

	Hours
(a) Orientation—National Defense Act and R.O.T.C.	2
Obligations of Citizenship	2
Military History and Policy	4
(b) Military Discipline, Courtesies, and Customs of the Service	3

1—Advanced R.O.T.C. students, University of Georgia, on a terrain exercise. 2—Students on rifle range. 3—Mounted wrestling. 4—Rescue race. →

All training is limited to that which will produce the maximum practical application in war. Above photos were made during summer ROTC training with 6th Cavalry.

(c) Military Sanitation and First Aid 5
(d) Organization of the Army—Organization of the Cavalry 5
(e) Map Reading 15

2. *Leadership:*
(a) Cavalry Drill 62
(b) Horsemanship 10

3. *Weapons:*
(a) Rifle Marksmanship 15

123

SECOND BASIC CAVALRY

1. *Leadership:*
(a) Drill 60
(b) Horsemanship 25

2. *Weapons:*
(a) Cavalry Weapons 14

3. *Combat Training:*
(a) Technique of Rifle Fire 11
(b) Scouting and Patrolling 13
(c) Combat Principles of the Rifle and Light Machine Gun Squad and Platoon .. 4
(d) Cavalry Marches and Camps (covered with (c) above)

127

FIRST ADVANCED CAVALRY

1. *Military Fundamentals:*
(a) Aerial Photo Reading 5
(b) Administration I and II 5
(c) Care of Animals and Stable Management 6

2. *Leadership:*
(a) Principles of Leadership and Instructional Methods 44
(b) Horsemanship 18
(c) Mechanized and Armored Elements 4

3. *Weapons:*
(a) Cavalry Weapons 14

4. *Combat Training:*
(a) Combat Orders and the Solution of Problems 15
(b) Marches, Security, Development for Combat, Offensive Combat, Defensive Combat and Organization of the Ground .. 15
(c) Combat Principles of the Rifle, Light Machine Gun, Heavy Machine Gun, Caliber .50 Machine Gun, 81-mm. Mortar, 37-mm. Antitank Gun, Scout Car, Motorcycle and Light Tank Platoons ... 26
(d) Defense Against Chemical Attack 3

Total 155

SECOND ADVANCED CAVALRY

1. *Military Fundamentals:*
(a) Military History and Policy 16
(b) Military Law 6
(c) Property and Funds 3
(d) ORC Regulations, Continuation of Training as Reserve Officer 2

2. *Leadership:*
(a) Principle of, and (b) Instructional Methods 46
(c) Horsemanship 15

3. *Mechanization:* 20

4. *Combat Training:*
(a) Review of Combat Training from the Squad to the platoon inclusive; Combat Orders and Solution of Problems . 16
(b) Combat Principles Rifle Training, Machine Gun Troop 30
(c) Antiaircraft Defense 3
(d) Combat Intelligence 2

5. *Review* 6

Total 165

★ ★ ★

Military History

"For anyone who aspires to become a great commander, there is an open book, called military history, which begins with the hand-to-hand struggle between Cain and Abel and which did not end with Napoleonic Campaigns.

"Its reading, I must admit, is not always exciting. One has to plow through a mass of uninteresting details! But—one accumulates facts, often encouraging facts! and at the bottom of it all, one arrives at the final realization how it all came about, how it had to happen and may happen again."—*von Schlieffen.*

Cavalry Training at Culver

*By Lieutenant Colonel B. F. Hoge, Cavalry**

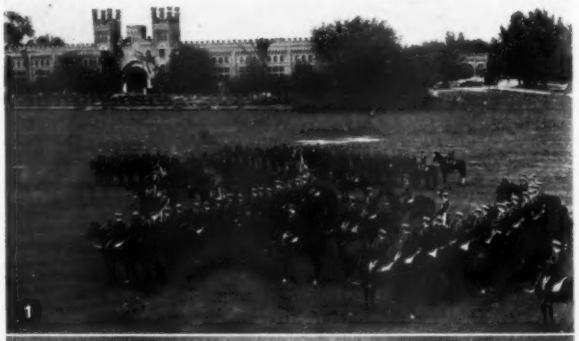
CULVER MILITARY ACADEMY, Culver, Indiana, controlled by the Culver Educational Foundation, is operated on a nonprofit basis. It has an enrollment of approximately 640 cadets, organized into Senior R.O.T.C. Units of Infantry, Field Artillery, and Cavalry. The Field Artillery is organized into a battery of 130 cadets, the Cavalry into a troop of 155 cadets, and the balance into four infantry companies and band.

The cadets are quartered in modern, fire-proof barracks by organization. Each organization is administered by one or more tactical officers, who are generally reserve officers employed by the Academy. These officers assist the Regular Army detail in giving the required R.O.T.C. instruction. The physical plant at Culver is very fine and modern consisting of barracks, administrative offices, mess hall, gymnasium, recreation building, riding hall, stables, power plant, shops, arsenal, laundry, hospital, and 1,000 acres of diversified terrain, including beautiful Lake Maxinkuckee. The Academy owns and maintains its own animals, about 70 for the battery, and 140 for the Black Horse Troop. Horse equipment, guns, arms, *et cetera* are supplied by the Government. The riding hall has a floor space of 300 x 100 feet. In the basement of the Recreation Building is located a large gallery rifle range, a pistol range, and a musketry range large enough to fire squad problems on landscape targets.

Culver is primarily a preparatory school for college. The average age of new cadets upon entrance is fourteen and upon graduation eighteen. Of course, new cadets may enter who require but two or three years to complete the requirements for graduation. All new cadets enter one week in advance of the old cadets. During the week they are equipped with uniforms, instructed in military courtesy, the regulations governing the Corps of Cadets, close order drill. Also they are given intelligence tests, assigned to classes and given physical examination during the initial week.

During their entire stay at the Academy, all cadets are under strict military supervision. Rooms are inspected daily with a formal inspection on Sunday morning before Chapel. In the fall and spring, formal parades are held on Sundays after Chapel. The Corps is formed and marched to and from meals and R.O.T.C. instruction. In general, the organization of the Corps, its administration, system of discipline, and the daily life of the cadets, is very similar to that existing at West Point. The principal difference is the age of the cadets and the fact that the primary objective at Culver is to prepare the young man for entrance to college. In my opinion that half the value of the instruction at Culver, from a military viewpoint, is derived from the daily experiences of the cadet where smartness, neatness, promptness and military methods of living are enforced.

The R.O.T.C. Cavalry instruction starts each year with close order drills without arms, followed by issue of arms and extended order drills—all dismounted. The drill period is generally between 2:30 and 3:30 PM from Monday to Friday inclusive. After about two weeks the old cadets of the Cavalry are ready for mounted work and the new cadets about two weeks later. Mounted instruction starts with basic equitation and horsemanship, than proceeds to squad drill, pla-



1—Cavalry on the parade ground with the riding hall in background. 2—Modernly equipped barracks. 3—Mounted units—the Artillery and the Cavalry—approach the reviewing stand at one of the weekly Sunday parades.

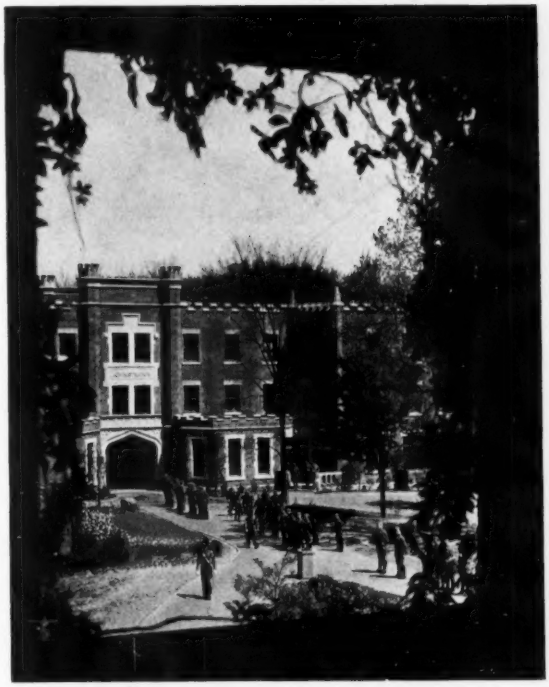
*Professor of Military Science and Tactics.

toon drill, and finally a few days of troop drill. The above instruction usually terminates at Thanksgiving, when weather conditions make outside drills of little value. By this time the cadets and horses present a highly creditable appearance in mounted formations.

Indoor instruction is now started and continues until about April 1st when the weather permits resumption of outdoor work. The troopers are organized into four classes, corresponding to the four years of R.O.T.C. training prescribed by the War Department.

Training outdoors is resumed about April 1st and continues until June. Horsemanship and drill are reviewed and brought back to standard as rapidly as possible. Tactical training is then taken up involving marches, security, approach marches, attack and delaying action. The War Department allots but 96 hours to cover the assigned subjects in each of the basic years and 160 hours for each of the two advanced course years. To secure results that are at all satisfactory requires careful planning, and expert instruction, as the field of instruction is extremely broad. The entire time available could easily be spent on equitation and drill.

The Academy officials make a number of long drill periods available in the spring season, of two or three hours length each. These are invaluable in putting over the combat training. To attain reasonable perfection in covering the program as outlined here is a race against time, at best. The whole-hearted coöperation of the Academy officials, the splendid compact facilities available, and the fine type of youngster to work on are factors that help in solving the problem.



Plebes forming for their regular noonday mess formation.

PRESS REPORTS

RED CAVALRY UNITS TAKE MANY VILLAGES

–By the Associated Press

Kuibyshev, April 25.–Red army cavalry units, scorning the spring swamps which have bogged down other ground forces, have taken a number of German-occupied villages and reached an important highway feeding the German front, dispatches to the newspaper Izvestia said today.

The horsemen were reported to be harassing the Germans at every turn by lightning raids on villages despite the efforts of German planes and artillery to check them.

On the Karelian front, it was reported that a unit of Russian guards attacked a hilly sector where the Germans had been fortifying the crests during the winter and captured an important height. . . .

GERMANS USE CAVALRY IN CAUCASUS DRIVE

–By the Associated Press

Moscow (Wednesday), May 13.–Heavy fighting raged through the night in the *Kerch Peninsula* with the *Germans throwing masses of cavalry*, tanks and infantry against formidable Russian forces defending that narrow gateway to the Caucasus, front-line dispatches reported early today. . . .

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This new Eighth Edition contains more information than ever before. The vital question of censoring soldiers' mail has been handled fully, as have the ticklish duties of the Public Relations Officer. The new supply procedure (Circular 105, April 10, 1942) has been included, and also the latest information on promotions (Circular 111, April 15, 1942). New colored plates on all the officers' insignia, and many of the shoulder patches of both the Army and Civilian Defense organizations have been included. Many other changes and revisions have also been made.

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Book Reviews

BUILDING MORALE. By Jay B. Nash, Ph.D. A. S. Barnes and Company. New York, 1942. 154 pp. $1.00.

Much has been spoken and written on the subject of morale, but this brief volume definitely has a new slant. Doctor Nash is chairman of the Department of Physical Education and Health, School of Education, New York University. In simple language he explains the importance of morale in our daily life and, in turn, how vital it is to the life of our country—"Morale by itself has no significance, but *morale for a purpose* is the all-important spirit that makes for victories."

All teachers, more than ever before, now have the great responsibility of stimulating the morale of their students. Although this book was written primarily for teachers, the parents of children and the commanders of troops can find in it material for similar responsibilities. "Morale wins wars, wins games on the athletic field, conquers the wilderness, carries us over crises and gives nations vitality to face and solve problems."

* * *

ARMY POSTS AND TOWNS (1942 edition). Compiled by Charles J. Sullivan. Haynes Publishers. Los Angeles, California. 199 pp. $3.00.

When it is most needed, this encyclopediæ reference book of over 400 army posts and towns is now ready for distribution. It was compiled and edited specifically for army use. It serves a useful purpose.

All post libraries should contain a copy!

* * *

THE OFFICER'S GUIDE (8th edition). The Military Service Publishing Company, Harrisburg, Pa. May, 1942. Appropriately illustrated. 479 pp. $2.50.

This new (8th) edition of *Officer's Guide* is worthy of special attention. In our opinion it now stands preëminent in its field. It has assumed the earned position of a standard guide for officers, junior and senior, irrespective of arm or service. It contains a wealth of up-to-the-moment information that cannot, under a single cover, be obtained elsewhere.

Numerous changes in regulations necessitated changes in the previous editions; so opportunity was taken to rewrite and improve several chapters and to add several new and valuable features in order to complete the scope of its intended purpose—an officer's *personal* guide—a ready reference on customs and correct procedures that pertain to commissioned officers the Army of the United States.

Every officer will want a copy of this eighth edition of *The Officer's Guide*. Take our word for it!

THE VALOR OF IGNORANCE. By Homer Lea. Harper and Brothers. New York, 1942. 344 pp. Maps and Appendix. $2.50.

What do we know of a little hunchback named Homer Lea who served as a Lieutenant General in the Chinese Republican Army? In 1909 in a book called *The Valor of Ignorance* he issued an extraordinary warning to the people of the United States—that war between the United States and Japan was inevitable. Clearly, by word and map, he outlined the course that Japan's aggression would take. Today, Japan is using precisely the general plan that Homer Lea then predicted. By some, Lea was acclaimed as one of the great military minds of the century; by others, a crank. Today, Homer Lea's conception of Japan's military course has been vindicated!

Of equal interest, however, is the introduction to this new edition written by Clare Boothe, in which is told the story, *The Valor of Homer Lea.* Be sure to read it!

✦ ✦ ✦

THE DAY OF THE SAXON. By Homer Lea. Harper and Brothers. New York, 1942. 249 pp. $2.50.

As in his first book, *The Valor of Ignorance,* Homer Lea in this volume, initially published in 1912, similarly gave a warning. Forecasting the inevitable nature of the Anglo-German conflict, as early as thirty years ago Lea drew brutal and startling conclusions as to the measures England should take to meet German and Japanese aggression.

"Fresh and pertinent as though it had been written this morning are his findings on the 'racial' character Germans insist on giving to their war making. Lea today would be saddened and fearful anew to hear so many asserting that 'Hitler, not the German people is our enemy.' He would most certainly insist that only to deal with the Fuehrer and the Nazi leaders would simply be to leave Germany lying fallow for another Hitler."

Disregarded and denounced as an alarmist at the time, today Homer Lea returns to the literary and military spotlight.

Clare Boothe's introduction, "The Valor of Homer Lea," also appears in this second book.

✦ ✦ ✦

MECHANIZED MIGHT. By Major Paul C. Raborg. Whittlesey House (McGraw-Hill Book Company, Inc.) New York, 1942. 284 pp. Illustrated. $2.50.

The author in easy style tells a descriptive and informative story of mechanization and motorization in our army. Having had personal experience in the Air Corps, Infantry and Cavalry as well as considerable staff duty in World War One, Major Raborg speaks authoritatively although obviously with more of a World War I than a World War II perspective.

His chapter, "The United States Cavalry and its Motorization," is of particular interest to cavalrymen.

Major Raborg stresses in general what our army is doing to keep step with new developments and some of the lessons our military observers have learned from the present and previous wars.

Graphic descriptions of actual fighting add to the book's reading interest.

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No. G-1 on The Cavalry Journal booklist
—See last page, this issue.

Manual of Mess Management

1st Edition, November, 1941

In this one volume a troop commander or mess officer, a mess sergeant or a cook, can find all the information necessary for running an Army mess of any size. It combines most of the material in the six main official books that apply to messing, plus additional matter for those who help in any way in the feeding of the American soldier. 346 Pages.

No. C-21 on The Cavalry Journal booklist
—See last page, this issue.

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Long recognized as an authority on Army paperwork, this book's usefulness is now further increased by numerous revisions and added matter.

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No. C-5 and C-6 on The Cavalry Journal booklist
—See last page, this issue.

THE ARMY OFFICER'S MANUAL. By Lieutenant Colonel A. C. M. Azoy, CAC, A. of U. S. D. Appleton-Century Company. New York. 366 pp. $2.50.

For some time there have been two generally accepted personal "guides" for the army officer; i.e., *The Officer's Guide*, by The Military Service Publishing Company, and *Officer's Manual*, by Moss. *The Army Officer's Manual*, however, covers material that is largely supplementary to the two "guides" mentioned and includes many of the latest revisions in army regulations and procedure that are useful to the army officer. Many questions that the inexperienced citizen officer naturally would ask are here answered. It is applicable particularly to officers of dismounted branches.

WHAT THE CITIZEN SHOULD KNOW ABOUT MODERN WAR. By Fletcher Pratt. W. W. Norton and Company. New York. Illustrated, 184 pp. $2.50.

WHAT THE CITIZEN SHOULD KNOW ABOUT THE AIR FORCES. By Lieutenant Colonel Harold E. Hartney. W. W. Norton and Company. New York. Illustrated. 226 pp. $2.50.

WHAT THE CITIZEN SHOULD KNOW ABOUT THE ARMY ENGINEERS. By Lieutenant Colonel Paul W. Thompson. W. W. Norton and Company. New York. Illustrated. 210 pp. $2.50.

These three informative books recently have been added to the *Citizen's Series*. In this case, however, they were written by well known authors. The books consequently reflect their greater experience. Remember the others? *What the Citizen Should Know About The Army; The Navy; The Coast Guard; The Merchant Marine; Civilian Defense; Our Arms and Weapons;* and *The Marines.*

It might be added truthfully that our men in the service, also, could well spend their spare time in broadening their knowledge of these subjects by a perusal of these interesting and timely books. Every military library should include this series!

WAR AND NATIONAL POLICY. A Syllabus, Edited by Grayson Kirk and Richard Poate Stebbins. Farrar and Rinehart, Inc. New York. 1942. 131 pp. $1.00.

It has become increasingly plain that totalitarian war and defense preparations by the non-totalitarian nations are phenomena which must be given recognition in courses in American universities and colleges.

This course syllabus is the result of the research and study of specialists within and without Columbia University combined with the Institute for Advanced Study, and is now offered in the belief that it will be useful to other colleges and universities.

The copy for this syllabus was completed during the summer of 1941, but it has added value and interest now that the United States has been forced into a condition of full belligerency.

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Horse Feathers

The Ultimate Source

After the World War armistice, General Pershing started the custom of genial inspections, mingling with the men. He was a bit green at it—after a year and more of unbending and terrifying surveys of his troops. He was easily nonplused, therefore, and one unexpected reply from a thrice-wounded soldier cramped his style for the rest of the day. He had put his hand, friendly-like, on the old warrior's shoulder and said kindly, "Sergeant, where did you get those three wound stripes?" The soldier looked him squarely in the eye and replied, "From the *supply sergeant,* Sir."

* * *

He was wont to speak plain and to the purpose, like an honest man and a soldier—Julius Caesar, III.

* * *

Rubber seems to be scarce everywhere but in the neck.

* * *

Necessity sometimes is also the mother of intervention.

* * *

Slogan for Stalin: KEEP 'EM FLEEING!

* * *

In this war we at least have had enough of *over-prediction.*

* * *

Quizitis?

SELECTEE: "Doctor, what is it that I feel—gastritis, arthritis, neuritis or laminitis? Guess three out of four!"

* * *

"What's the last word in airplanes?"
"Jump!"

* * *

GUIDE: "We are now passing the most famous brewery in Milwaukee."
TROOPER: (Bailing out of the bus) *"I'm* not!"

* * *

"—a toast to the JAP navy!
BOTTOMS UP!!!"

* * *

WHOOPER: "I wish the Lord had made me a man!"
TROOPER: "He did—I'm he!"

* * *

TROOPER: "I suppose you dance?"
HOSTESS: "Oh, yes, I love to."
TROOPER: "Fine—that's better'n dancing."

Pay Day

TROOP BARBER: "Well, Trooper, how 'bout a shampoo?"

TROOPER: "Listen, Jerk, I'm in this war all out! Cut the *sham,* but gimme all the *poo* ya got—I wanna sling it at the Japs!"

* * *

"Say, Post Baker, aren't you making your rolls a little larger these days?"
"Rolls? Say, howdoyergetthatsuch, Them's loaves."

* * *

The real trouble with many who think that they have a hard row to hoe is—they don't like to hoe.

* * *

The only difference between meddling and investigating is that *we* always investigate—the other fellow meddles.

* * *

It's a good horse that never stumbles. The fault is not in stumbling, but in *stumbling* twice at the same place.

* * *

Don't kill time, kill the enemy!!!

* * *

TROOPER I: "What sort of a guy is your platoon sergeant?"

TROOPER II: "He's a horsey gent who gets in my hair, and when he does I have an uncontrollable obsessed desire for a horse-clipper haircut."

* * *

It takes the truth a long while to catch up with a rumor.

* * *

Troopers and pins are useless when they lose their heads.

* * *

What is whispered usually does a lot more damage than what is shouted.

* * *

Great things happen when energy gets chummy with enterprise.

* * *

A Joke's a Joke for all that—

Whether you call your wise-cracks "Spark Plugs," "Gas Fumes," "Hossplay," "Horse Scents," "Hosstales," "Hoss Gags," "Hossy Gibes," "Horseclippings," "Hosslaffs," "Horse Chestnuts," or "Jus' Hossin'," send them in anyway. They're probably just plain old fashioned "Horse Feathers"; and if they are, *we'll print them.*

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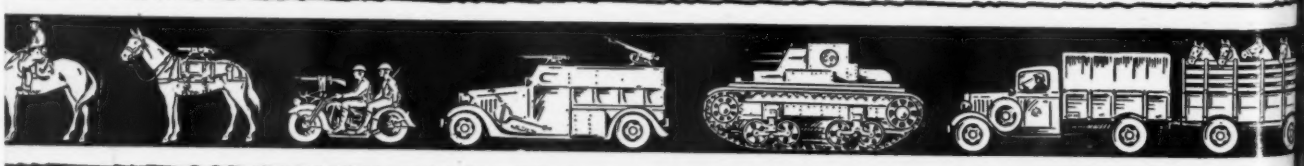
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